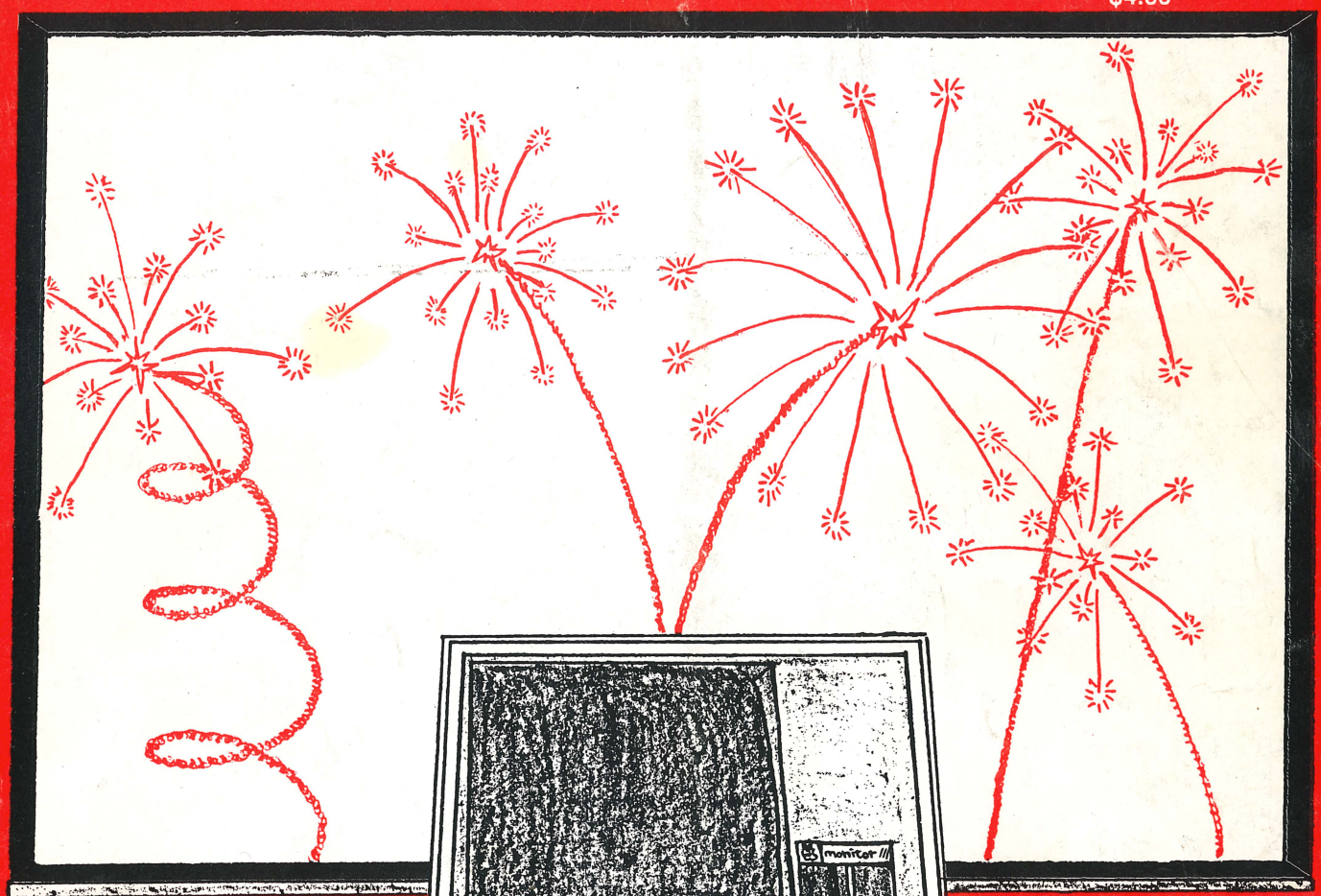
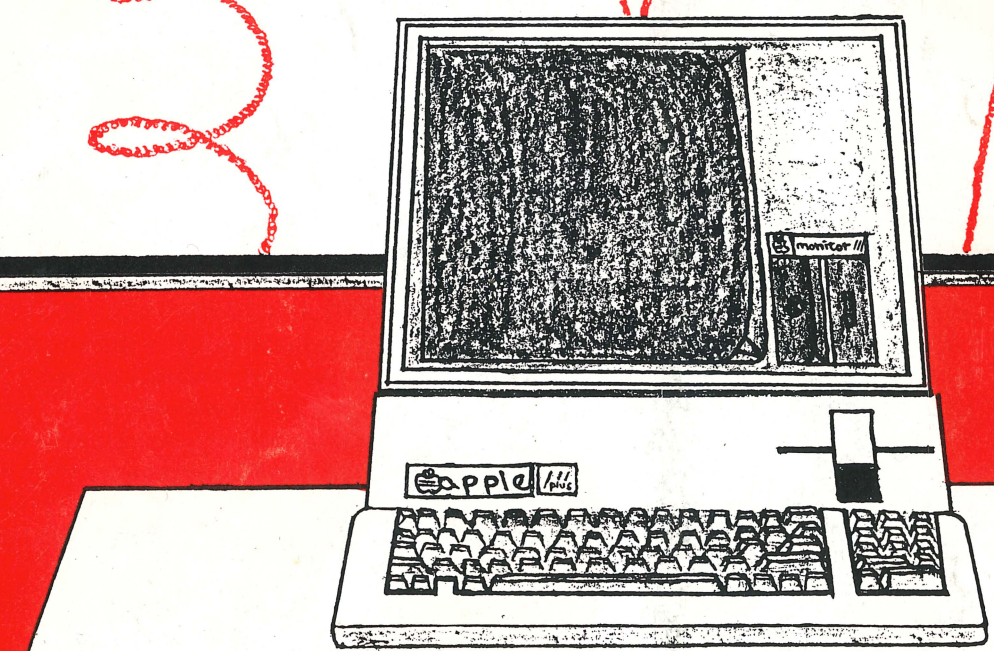
ON THREE®

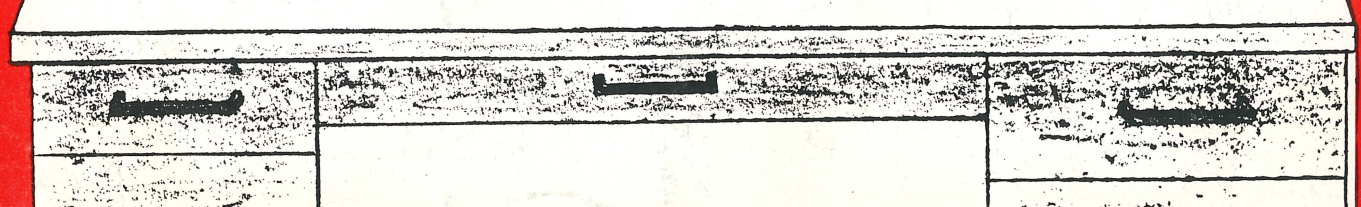
The Magazine For Apple III Owners and Users

Volume 4, Number 7

July 1987
$4.00

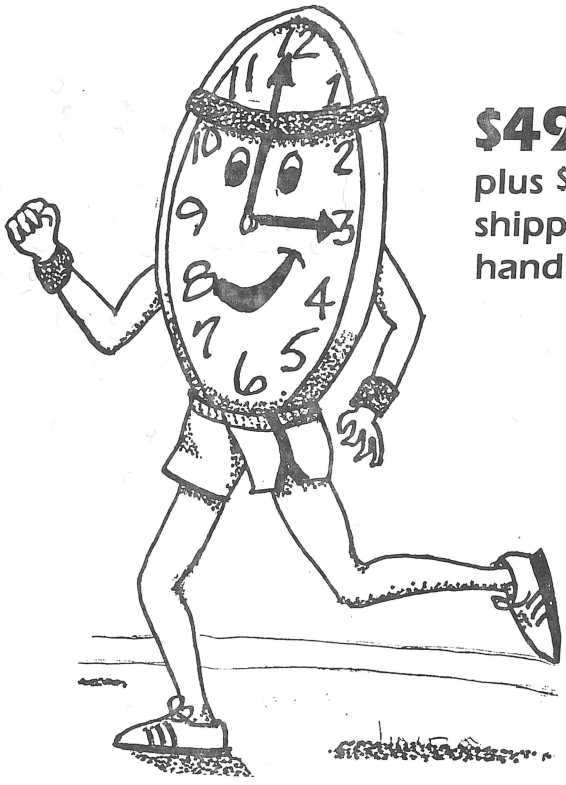






Get off and running with the ON THREE O'Clock!

Let the ON THREE O'Clock be your stop watch today!



$49.95
plus $3.00 shipping and handling

Believe it or not, a lot of folks have plain forgotten (or never knew) that the Apple /// was designed to operate with a built-in clock and that, with a clock chip installed, SOS will automatically time stamp and date all file saves.

When the Apple /// was first released, the supplier of Apple's clock chips could not supply a working clock. As a result, the /// was supplied without a clock of any kind. Now maybe you are wondering when you list a disk directory, how the time and date magically appears.

Not too long ago *ON THREE* developed a clock for the Apple /// which plugs in right where the never-released Apple clock was supposed to go, and for just $49.95 plus $3.00 shipping and handling, this easy to install, SOS-compatible clock can be yours. It comes with comprehensive instructions and *ON THREE*'s limited six-month warranty and does not use any of your precious slots.

With an *ON THREE O'Clock* installed, whenever you save or modify any type of file, the current time and date will be added to the directory listing so you can always tell at a glance which file you last worked on, and when. But that's not all. Business Basic has two reserved variables, DATE$ and TIME$, which return, respectively, the current date and time to your BASIC program. These reserved variables can then be used whenever you want to print the date and/or time in a BASIC program.

Special Combination Offer

There's a great deal more you can do with *ON THREE's ON THREE O'Clock* if you also have our *Desktop Manager*. Whenever you want, you can display the current date and time on the screen with one keypress. Since this is a background function, you can be word processing with AppleWriter or entering data into VisiCalc, and with one keystroke you can obtain updated time information. In addition, you can use the *Desktop Manager*'s Appointment Calendar to enter items you want to be reminded of and, like magic, when the time comes, no matter what you are doing, a message will appear on your screen to gently chide you via the *Desktop Manager* to make that phone call now, etc.

Now The Appointment Calendar is not the only feature of the Desktop Manager, you can read about the Calculator, the Notepad, and the others elsewhere, but since the *Desktop Manager* requires a clock, we want to offer you a money-saving deal. Purchased together, you can get the *ON THREE O'Clock* and the *Desktop Manager* for only $173.95 plus $8.00 shipping and handling. Now is the time to take advantage of this special offer.

Desktop Manager/ON THREE O'Clock Combo

$165.95 plus $8.00 shipping and handling

Publisher:
Bob Consorti

Editor:
Paula Sheppard

Comptroller:
Joseph Consorti
Logistics:
Janet Schanz

Technical Support:
Terry McNeese
Research & Development:
Tim Harrington

Order Department:
(800) 443-8877 (toll-free)
(800) 331-1418 (in California)
Technical Questions:
(805) 644-3514

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ON THREE®

The Magazine For Apple /// Owners and Users

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ON THE COVER:

APPLE /// EXPLOSION? No, just "the bombs are bursting through air" to declare that the /// is still here. As you and yours are celebrating the Fourth of July, remember the warm wishes from *ON THREE*. (Artwork by Don Sheppard)

Disk of the Month

What is the ultimate time-saver? Why *ON THREE's* Disk of the Month diskettes, of course. Why use your precious time typing in *ON THREE* program listings when they are available on diskette for just $14.95 (plus $2 shipping and handling) each?

Better yet, mix and match. Any two or more for $12.50 each (plus $4 total shipping and handling). Best bet: the works.

***Now is the time* to start your collection of these program-filled diskettes from all issues of *ON THREE Magazine*. Bulk and group purchase rates are also available, call (805) 644-3514 to inquire about these super savers.**

DOM #1—Extra Disk Space Plus!

This diskette contains all programs from volume I, nos. 1 and 2 of ON THREE *Magazine*. Included: Disk Pak1 with a program to give you four additional blocks of space on your data disks, and Disk Pak2, something you can't do without if you are a Pascal user, a convenient and easy way to list the files on a Pascal directory. Plus graphics and sound demos and more.

DOM #2—Changing Printer Characters

Here is an amazing program you won't want to miss. With it you can print to the Apple Dot Matrix and compatibles such as Imagewriter or ProWriter the same characters that are shown on your video display. Many special fonts, including fancy gothic characters, can enhance your printed output. And, it comes with complete documentation. Also on DOM #2 are the other programs from issue number 3, more graphic demos plus: a program to list files from an Apple II diskette without entering emulation mode.

DOM #3—Redefining a Keyboard

This disk is jam-packed full with programs that appeared in Volume I, No. 4 of ON THREE, and includes an easy-to-use program to redefine any or all keys on the Apple /// keyboard. Of particular interest is the ability to reassign the "\" to be the delete key so it can be used on AppleWriter /// and other programs. Also included are all the WPL programs, a disk formatting utility, a graphics sketching tool and still more that we don't have room to list here.

DOM #4—Emulation Patch

Volume II, No. 1 had so many great programs it took two disks, DOM's 4 *and* 5, to hold them all. DOM 4 has all of the Pascal programs and the *Apple II Emulation Patch*, a way to use any Apple /// Font in emulation. Also included is the Pascal startup program for *Access* /// that lets you autodial. Another fine utility is a Pascal program and UNIT to permit calculations from within the Pascal environment. Demos haven't been forgotten either with *Radiate Graphics Demo* and *Beatles Music Demo*. To top things off, we have included a number of *Draw* ON pictures you can view with the program on DOM #5

DOM #5—Access Draw ON

Here we find the BASIC startup program to autodial from *Access* /// and *Ben's SUPER Slot Machine*, along with all of the VisiCalc and WPL programs, and the *Circling Graphics Demo* which will show some of the fantastic images that *Draw* ON can create, plus still more *Draw* ON pictures, along with the *Draw* ON ///*Picture Demo* which you use to view *Draw* ON pictures.

DOM #6—BASIC Lister Plus!

Straight from the pages of Vol. II, No. 2 is a program which will give you perfectly formatted listings of Business Basic programs, and a Pascal program to guide and assist you in selecting noises for animation and game programs. Both the *Pascal Noisemaker* and the BASIC lister come with full documentation. We've also tossed in still more *Draw* ON pictures and some new fonts, as well. You can use the *Draw* ON viewer from DOM 5 to see them.

DOM #7—Heap Good Stuff

From Vol. ///, Nos. 1 and 2 we present a BASIC heap sort routine and demo, IMAGEHELPER, a neat graphics utility to simplify graphic image design, and a menu-driven program to pre-select printer codes and parameters.

DOM #8—Directory Sorting

Here is what you have been waiting for, a complete BASIC and Assembly program to take those old chopped up directories and sort them out in just the order you want. Included also is *Clean.Heads*, a Pascal program which excercises your disk drive at cleaning time *and* writes a program to remind you when you last cleaned heads, plus a simple utility to read a text file and find out what the contents are without having to write a program on the spot.

DOM #9—Music, Music, Music

Here is a great collection of programs from April through July, 1986. *Music Maker* and *Music Player* let you create and play your own Merry Melodies with alternate sets of DATA statements in BASIC. *Energy Plotter* not only plots energy consumption graphs, but contains techniques to "roll your own." In addition you will find a space game, graphics images and an assembly language subroutine to find maximum and minimum values in an integer array.

DOM #10—Editing Character Sets

A great Pascal program to download and modify or create new fonts, this editor makes childs-play out of designing new text characters to meet your specific needs. Special math signs, foreign alphabets, you can do them all. *Football Pool* is a BASIC program to print out a grid for that office pool. All you do is type in the teams, the scores, and the participants; it does the rest. What? 3-D Video? Yes, indeed, *Stereo Spiral* shows how, using simple Business Basic subroutines. For the more technically inclined, the assembly subroutine *Pixel Inverter* does just that. Also included is *Prompt Procedure*, a collection of Pascal and assembly demos to write to the screen, and a couple of programs in WPL (Word Processing Language) to be used with AppleWriter.

Apple.Sauce

by Paula Sheppard

Is telecommunications for you?

Why telecommunications?

Have you been considering diving into telecommunications, but didn't know whether or not you wanted to get your feet wet? Most recently, the number of programs available for /// telecommunications has been increasing. Within the last few months, two Apple /// communications packages have been added to the market, including *ON THREE*'s Communication Manager which is now available for $49.95 plus $3 shipping and handling.

In April's edition of *ON THREE*, Rodney Hendricks explained the basics of telecommunicating. In May and June, we read the Data Capture /// review by Edward Gooding. So this month, each of us can examine our own use of the /// and decide whether or not telecommunicating is worth investing in.

How does a modem allow me to expand?

To begin with, a modem allows you to talk to other computers with modems. For instance, if you are managing a physician's office which has three satellite offices in nearby cities and a longtime patient is moving to a city in which you have a satellite office, his records need to be transferred there. It is much more convenient to telecommunicate and have his records sent on the /// to the satellite office than to wait for the records to be sent through the mail.

Another plus for telecommunicating is the fact that you *do* have the ability to send and transfer files to other computers, besides the ///. Let's say you have a friend in another state but never seem to be in the mood to call or write, well if both of you have a modem and the correct communications programs, you can communicate with your friend on your ///. That also comes in handy when you are having trouble talking due to having a cold. No one will hear a word you say, they'll just see it printed on the screen.

If you're having problems with your /// and it is late in the evening (past *ON THREE*'s office hours) try CompuServe™'s special Apple /// forum online to contact any knowledgeable /// user who will most likely be glad to assist you.

Through communicating with other computers, you are allowed to expand your capabilities both at the office and home. In your office, once you begin using a modem, you'll wonder how you ever managed without one. At home, too, you'll find it exciting to talk back and forth on your computer.

Speed

When deciding if telecommunications is for you, it is important to keep in mind the speed and accuracy gained when using a modem. The speed alone will come in handy in various ways. For instance, let's say today is your mother's birthday but you had completely forgotten it until you checked your Desktop calendar for appointments. Don't fret because she lives five states away from you. Through CompuServe's *Home Shopping and Banking* services you can send her a dozen roses and they'll be delivered that day. No embarrassment, no hassles. Your mother will never know that you didn't remember her birthday until the last minute. It also comes in handy when you don't have time to go to the flower shop or just really don't want to.

Have you ever wanted to be able to read the morning paper without having a huge newspaper take up half of your desk or breakfast table? Read it at work. That's right. Through CompuServe you can also view the *Washington Post*. On CompuServe, you can also checkout the latest stock reports. All of this saves a little time each day and it is hassle-free. CompuServe is one of several information services available in the telecommunications business.

Another thing to consider is telecommunications vs. the U.S. Mail discussion. At work, have you had problems in the past receiving important records and files the day you need them but have been held up by the U.S. Mail? More importantly, have files ever been *lost in the mail?* With a telecommunications package, you can forget about this problem. Certainly, there may be a few times when a file is inadvertently lost but you will always have the original copy so you won't have to worry about waiting a week to see if the U.S. Mail has pulled through and delivered the files. In just a few minutes, you can send another copy of the files and know instantly whether or not the copy was received. The fretting is over.

At *ON THREE*, telecommunications comes in rather handy for putting the magazine together. For instance, author Ed Gooding recently sent me an article for publishing using the Communications Manager to access an electronic bulletin board service, *Three's Company*, that he had set up for me. It is very easy to use the system. Ed uploaded his file from his hard disk and I downloaded the file to my hard disk. In a matter of minutes, it was on my Apple ///, ready to roll. I popped into the Communications Manager once again to convert the **Unknown** file to an **ASCII** file so I could use the article for publication. Believe me, this process comes in handy for deadlines. It allows authors to spend a little more time with their articles before they are

Can't find your👓? Having a difficult time remembering where things are? ON THREE can't help but we can help improve your ///'s memory. ☞ to ON THREE for all of your ///'s memory needs.

That's right. You can improve your Apple ///'s memory in a matter of minutes by simply installing a 512K Memory Upgrade, specially priced as low as $289*.

LOOK! 👀

The 512K Memory Upgrade includes:

- Complete 24-page instruction manual.
- Ultra-fast RAMDisk Drive with demonstration programs.
- The 512K Upgrade disk which automatically adjusts your disks to utilize the 512K of memory and contains the updated version (1.2) of the System Utilities program permitting larger SOS.DRIVER files.
- The 512K Confidence Memory Program which tests all memory and ensures your 512K Memory Board is working correctly.
- *ON THREE*'s new and improved 180 day (six month) warranty.
- And of course, an Apple /// 512K memory board with state-of-the-art, 256K memory chips.

Place your order today for the exciting, low-priced 512K Memory Upgrade.

Call toll-free: (800) 443-8877
California residents: (800) 331-1418

The 512K Memory Upgrade from *ON THREE* has been the ///'s best selling add-on hardware item for the last two years. And now it's even better. With the lowest price ever and a full six month warranty, *now* is the time to order your 512K Memory Upgrade.

Have you ever run out of memory in /// E-Z Pieces? Do your VisiCalc programs yearn for more memory? Have you ever had stack overflow problems with certain large programs? Do you want to use the new accessories to the Desktop Manager but can't spare the 32K of memory those utilities require?

Worry no more, because with a 512K-equipped Apple ///, all of your problems are over. Enjoy a full 414K of desktop space in /// E-Z Pieces, 442K in Advanced Visicalc, 455K in Visicalc, 456K in Apple Writer ///, 456K in Business Basic—the list goes on. Almost all** programs running under the Apple /// SOS work with the 512K Memory Upgrade.

Do you use Catalyst or Selector ///? Have you ever had problems running large programs such as State Of The Art Accounting, BPI, Omnis 3, Keystroke and Draw ON ///? These programs use all available memory in a 256K Apple ///. Since Catalyst and Selector each occupy some memory as well, certain large programs will not work on a 256K Apple ///.

A 512K Apple /// has enough memory and room to run the largest programs available today with some to spare. You can create larger spread sheets, data bases and word processing documents. Your 512K Apple /// will be able to do things few other personal computers can.

Included free with the 512K Memory Upgrade is an ultra-fast RAMDisk. This is an optional enhancement to the 512K Memory Upgrade which allows you to use a portion of your ///'s memory as a fast RAMDisk drive. One noticeable benefit is faster program utilization, but there are many more.

The 512K Memory Upgrade is easy to install and even easier to use. It is a *replacement* memory board and, therefore, doesn't need a precious expansion slot. Hidden inside your Apple /// is a 128K or 256K memory board. Simply take out the old board and put in the new one.

Using state-of-the-art 256K memory chips, the 512K Memory Upgrade is the single most exciting add-on produced for the /// in a long, long time. Even though we have many 512K Memory Upgrades in stock, at this unbelievably low price, we're expecting temporary shortages. Order yours today.

* The purchase price is $324 plus $10 shipping and handling. After installing the *ON THREE* 512K Memory Upgrade, return your old 256K memory board for a $25 cash rebate or a $35 software credit.

If you have a 128K Apple ///, the cost is $324 plus $10 shipping and handling with no rebate. If you order a 512K upgrade for your 128K machine, please ask for the free 128K to 512K instructions. We recommend that a 128K to 512K upgrade be done by *ON THREE* or a registered Apple Dealer.

ON THREE will install any memory upgrade for just $50. We offer a one day turnaround on 128K or 256K to 512K upgrades. Call for more information.

** The regular Word Juggler program works with the 512K Memory Upgrade but does not offer additional lines for your documents. An upgraded version is available which allows twice as many lines in your documents. To obtain it, please send a disk with return postage to *ON THREE*. However, there is one known problem with the updated Word Juggler package. It does not work with the LexiCheck spell checker option. To check the spelling of a very large Word Juggler document, you must divide it into two smaller sections.

** The program Multiplan from Microsoft does not recognize the 512K Memory Upgrade.

mailed to us. But most of all, it allows me to communicate to the author as questions about the article pop into my head. I don't need to write the author a letter and ask him specific questions, I can just read the article and immediately ask questions and get answers *without* waiting 10 days. It takes approximately five days to send a letter from coast to coast and another five days to get a response. Quite time consuming through the U.S. Mail, wouldn't you say?

Cost

Lastly, it is important to consider the cost of telecommunicating. When doing so, you must take into consideration the extent you can benefit from using a modem.

As Rodney Hendricks mentioned in his April article, you must consider purchasing a modem and a communications program. Modems are categorized according to the speed they can transfer data. A 1200 baud modem sends 120 characters per second and 2400 baud sends 240 characters per second. Hendricks recommends starting out with a 1200 baud, Hayes-compatible modem for about $100.

When choosing a program, make sure you can get the most out of it. Six programs I would recommend that you take your time and compare the features are Access /// (by Apple Computer), Communications Manager (by *ON THREE*), Data Capture /// (by Southeastern Software), Easy Term (soldby Sun Systems Remarketing), Terminus (by Haba) and X-Modem /// (by Moore Enterprises). The cost is in the $40 to $100 range depending on which package you choose. Next month Ed Gooding will be reviewing *ON THREE*'s Communications Manager and Moore Enterprises' X-Modem ///, so you may want to hold off and see what he has to say about the programs.

You'll also want to use one of the information services. Here are the addresses and phone numbers of two such services that you may want to consider.

CompuServe
P.O. Box 20212
Columbus, Ohio 43220
1-800-848-8990

The Source
1616 Anderson Road
McLean, Va. 22102
1-800-336-3366

Due to the varying rates of these services each month, it would be better if users called for price quotes from CompuServe and The Source. Often the companies run specials and introductory prices. So be sure to check with them and compare prices and services.

Serious consideration

Are you ready for telecommunications? If you are not sure ask yourself these questions:

How often would I use a system to transfer files to another computer?

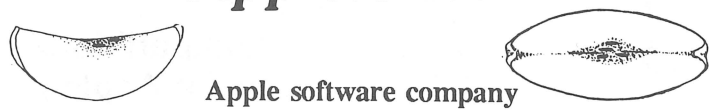
Would the increased speed in mail be worth the money spent for the system?

How can telecommunications help me at work?

How often would I use an information service to help me with problems I encounter while using my ///?

Hopefully, this article has given you a little more insight into the telecommunications world which will help you decide whether or not it is for you. We can hear the words, "It works for me!" but it doesn't always mean that it will work for everyone. We can also hear the words, "It didn't work for me!" and be convinced it won't work for anyone. In either case, don't rely on others, just make your decision and have fun computing and/or telecomputing!

Apple.Slices



Apple software company

Apple Computer will be developing a software company, to be headed up by William Campbell, Apple's executive vice president of U.S. sales and marketing. In early May, Apple made the announcement, saying that the software company would be separate from Apple, but would be marketing software for the Apple II and the Macintosh currently published by Apple. It will also be buying products from third parties to market and it will be developing some new products itself.

According to Apple Computer spokeswoman, Barbara Crouse, the company is "still in its organizational stage" and will remain in the Apple Complex in Cupertino, Calif. until it is fully developed. Crouse anticipates that it will be operating outside the complex within a year in the Cupertino area.

She also does not expect the company will compete with other developers as it will not carry the Apple logo and it will be a place where developers can get their software published.

Compact modems

Practical Peripherals of Westlake Village, Calif. has recently released the Practical Modem 1200 SA Mini, which is a compact, Hayes-compatible modem, designed to support virtually all communications software. If you're looking for a modem, you may want to call Practical Peripherals at (818) 991-8200.

New releases

ON THREE has released two new products since March. If *you* haven't heard yet, The Desktop Manager™ has an accessories disk which includes a labeler, printer setup, a new desktop setup, screen dump and a menu manager, to name a few. It is available for $39.95 plus $2 s/h.

Most recently, *ON THREE* released The Communications Manager™ to run with or without the Desktop Manager. The Communications Manager allows your /// to talk to other computers or services such as CompuServe™ or The Source™. You can transfer files by using Binary II or XModem. It sells for $49.95 plus $3 s/h.

Smart users select the

Selector ///

The smart Program Switching utility

from ON THREE

- **Switch to Selector /// now**
- **Ideal for UniDisk or hard disk systems**
- **Compatible with more than two dozen major Apple /// applications**
  - *AppleWriter ///*
  - *Business Basic*
  - *Haba Merge*
  - *VisiCalc*
  - */// E-Z Pieces*

  . . . and more

$99

plus $7 s/h

Selector /// is a state-of-the art program switcher.

A program switcher is a utility that functions as your computerized personal secretary. Its purpose is to make instantly available to you, without rebooting, a wide range of applications programs stored on your hard disk or high capacity floppy (such as UniDisk). Programs such as AppleWriter ///, Quick File /// and more than two dozen others.

Each time you require a different application, just tell your personal secretary, *Selector ///*, with a couple of keystrokes, and it will be there in seconds. No need to find your way through sub-directories or paw through a stack of floppies.

When you start your system up in the morning, just boot *Selector ///* and that's it for the day. Smart users are switching to and with *Selector ///* now.

Selector /// works with all of these programs:

- ✔ Access ///
- ✔ Access 3270
- ✔ Advanced VisiCalc
- ✔ Apple][Emulation
- ✔ AppleFile ///
- ✔ Apple Speller ///
- ✔ Apple /// Pascal
- ✔ AppleWriter ///
- ✔ Backup ///
- ✔ BPI
- ✔ Business Basic
- ✔ Business Graphics
- ✔ Cobol
- ✔ Draw ON ///
- ✔ Easyterm
- ✔ Graph'n Calc
- ✔ Haba Merge
- ✔ Keystroke Data Base *
- ✔ Keystroke Report Generator *
- ✔ Lazarus ///
- ✔ Multiplan
- ✔ Nexus
- ✔ PFS: File *
- ✔ PFS: Graph *
- ✔ PFS: Report *
- ✔ Quick File ///
- ✔ Script ///
- ✔ Senior Analyst ///
- ✔ VisiCalc ///
- ✔ /// E-Z Pieces

*Indicates boot disk required in internal drive.

Selector /// $99 plus $7 shipping & handling

ON THREE (805) 644-3514
P.O. Box 3825
Ventura, CA 93006

Send me _____ Selector ///s

Name _____

Address _____

City _____

State _____ Zip _____ Phone _____

☐ enclosed $ _____

☐ M/C ☐ Visa ☐ AE*

number _____ exp. date _____

Signature _____

*3% surcharge on American Express
California residents add 6% sales tax.

The Beginning ///

by Richard and Lavona Rann

Giving your /// a physical

A few months ago we discussed the most common mechanical problems that effect the Apple ///. In that article we talked about problems caused primarily through heat expansion, accumulation of dust and dirt, and electronic part corrosion. A number of problems can exist in anything as sophisticated as the Apple ///, and recognizing them is often difficult. In this month's column, we will look at some of the ways you can isolate and identify the root cause of many difficulties. What is needed to work along with all the suggestions we will make are: an Apple ///, a monitor (either color or monochrome, though the video tests will be slightly different with a color monitor), a blank Apple /// diskette for each disk drive to be tested, and the Apple /// Dealer Diagnostic Test program diskette. The Dealer Diagnostic disk has made its way into the public domain disk library of a number of Apple User Groups, and you can obtain it from them at a nominal cost. The first set of tests that will be covered do not require this disk.

Built-in tests

Every time the Apple /// is turned on, it performs a number of self-diagnostic tests to ensure that its hardware is function correctly. These tests form a significant part of the instructions stored in the machine's 4K of ROM. If any of these tests fail, an error message will be displayed on the screen indicating which of the six tests has failed. The messages are displayed in Figure 1.

Figure 1

Message	An error found testing
RAM	the random access memory.
ROM	the read only memory.
ACIA	the Asynchronous Communications Interface Adapter which controls the RS-232-C port.
VIA	the Versatile Interface Adapters which controls the ///'s internal functions.
A/D	the Analog to Digital converter which controls the joystick.
ZP	the Zero Page function which is the addressing function.

The first of these tests is the one that the /// most commonly fails. Loose chips will usually show up in the RAM test, even though a single faulty RAM chip will not always cause the /// to be unable to boot. This means that when the failure occurs, you may be already using an application program. This the underlying problem that usually gives you the intermittent problems that we mentioned in the prior article. A RAM failure usually indicates a contact or corrosion problem rather than a bad chip. That is good news because you can fix it yourself as explained in the prior column. In the other tests, the problems are likely to be a little harder to solve. The parts tested in the other five tests, are more commonly soldered together and a problem is likely to require a new part.

One word about software failures before we continue. There is no need to automatically assume that a system failure was caused by hardware. Software failures are every bit as likely to cause failures as hardware. Faulty reads of SOS or a program disk may cause system problems that appear to be hardware problems. A repeated failure of an application, in the same place or similar situation, usually indicates a software error. If an error situation occurs often in the same function of an application, or is repeatable, or occurs with regularity, it is almost certainly a software error rather than something wrong with your ///.

There is an easy way to look at the functioning ROM diagnostic routines. Doing this is especially important if you have experienced unexplainable problems with the ///. Severe problems with RAM chips will usually become immediately apparent when you do this test.

To begin, the Apple /// will have to be booted with no diskette in drive 1 and the drive door open. This will cause the system to fail to boot because it can't find the parts of SOS required for a boot. A **RETRY** message will appear in the upper left hand corner of the monitor. Now: *Hold down* the **OPEN APPLE CONTROL** and **RESET** keys all at the same time.

It may take the system a minute to recognize the combination. When it does a "->" prompt will appear in the upper left hand corner of the screen. The prompt indicates that you are now interacting with what is known at the *monitor* program which is stored in the ///'s ROM and contains the self-diagnostic routines. In order to run this diagnostics, you must *type in* **F6E6G** then **RETURN.** This is the hexadecimal address in ROM of the diagnostic routines. The command will start the self-diagnostic and displays the results on your screen. If you make a mistake and type in something else, it is best to start over all the way back at re-starting the machine.

Several screens of testing characters and symbols in various hires modes and color will appear and disappear.

If there is any problem the general pattern will be broken. The most important feature of the ROM diagnostic is the RAM check. It appears as a block of dots eight across and eight deep for a 128K machine; a second block that will appear at the end of the test for 256 machines. Each dot represents a chip. When they are functioning properly all the chips will be represented by dots. When a chip tests as bad, the dot is replaced by a "1". A bad chip in the eighth position of the first row would look like this:

```
. . . . . 1
. . . . . .
. . . . . .
```

The number one indicates that the chip in the upper right hand corner of the test matrix is indicating an error condition. Each dot represents a particular chip so an Apple /// repair and parts manual matrix map is needed to know where that chip is and its part number. While this level of repair will be beyond most people's interest, it does indicate the level of sophistication with which the Apple ///'s test and diagnostic system was designed. Secondly, it is the best indicator of loose or corroded chips. If the the error condition still exists after the chips have been cleaned and re-seated, then the chip can truly be assumed to be faulty.

A note for people using Titan ///+ IIe boards. When this board was installed some of the ///'s normal functions were shifted to new chips. One effect of the change is to confuse this diagnostic. The problem will not cause the boot to be aborted, but in our machine, the diagnostic shows eight bad chips in the second matrix. While there seems to be some variation between machines, the Titan ///+//e cards appear to cause most ///'s to appear to have a chip problem. If you have installed these cards, we suggest that you test RAM with one of the following diagnostic disks, they do not get confused by the ///+//e.

Apple /// Dealer Diagnostic Disk

The dealer diagnostic disk covers the same ground as the internal test using many of the same tools, but in a more organized manner. It is a way to run a complete test on every system involved in the Apple ///. The disk is designed in sections so if only one area is in question, only that area need be tested. In general it is designed to diagnose failures at a modular level. A complete test will require that disk drive test diskettes be made for every drive to be tested. Those disks are generated by using a routine that is on the diagnostic disk. If a color monitor is to be used, the results will differ slightly from the results obtained with a monochrome monitor, and will have to be evaluated separately. The differences between the two monitors will be discussed as part of the particular tests where the differences arise.

Put the Dealer Diagnostic disk in drive one and boot the computer normally. As when any other disk is booted, the Apple /// will have to pass the internal ROM boot diagnostic procedure as part of the boot process. This normal boot self-diagnosis has a good side and a bad one. The good side is that every time you successfully boot your /// with any program, it indicates that the /// is basically sound. The bad side is that the checking is an all or nothing operation. Either everything works or it doesn't. That means that the tolerances of the diagnostic are set to let the /// run if things are just a little short of correct, and there is no way that you can tell. The Dealer diagnostic programs are a little fussier and let you check for other error conditions. The diagnostic menu is shown in Figure 2.

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When the menu appears on the screen, the **TEST ALL** option is highlighted in inverse video. Pressing return at this point will test all conditions. To test a single specific function, you can use the *arrow keys* to move the inverse video area up and down the menu to highlight your selection. Press **RETURN** to accept the highlighted option. Escape exits the diagnostic program, and the system will need to be rebooted. (It is interesting bit of trivia to note that the diagnostic program is designed for the **TAB** key to have the same function as escape for Apple II compatibility.)

Let's continue our examination of this program and your ///'s health by skipping down to **MAKE TEST DISKS.** The first prompt will ask to remove the Diagnostic disk from drive one. Next it will ask that the number of the drive corresponding to drive for which a test diskette is to be prepared. Make certain that you have a blank diskette in that drive, enter the drive number (1 through 4), and press return. When the diskette is ready the system will ask if

Figure 2
Diagnostic Menu:

```
TEST ALL
VIDEO(NOT TESTED)
SOUND(NOT TESTED)
RAM MAP - 5V(NOT TESTED)
DISK(NOT TESTED)
KEYBOARD(NOT TESTED)
ROM(NOT TESTED)

RAM TEST - 12V(NOT TESTED)
MAKE TEST DISKS

Press  up/down arrow to select test
       RETURN to run test
Press  ESCAPE  to quit
```

another diskette is to be prepared -- n/y. "Y" for "yes" will start the process again; "N" for "no" will exit back to the main menu. Remember, that a diskette is needed for every disk drive that is to be tested and it must be prepared with that drive number of the drive to be tested.

Now that you have all your test diskettes made, let's go back and run the tests. If you took them out, put the test diskettes back in the appropriate drives, except for drive 1. Put the diagnostic diskette back in drive one and keep the test diskette for that drive handy.

TEST ALL accepts all items on the menu except the **RAM TEST** running them in order, but in exactly the same way as if they were selected individually. Let's go through them one by one.

Video tests

The video test requires that the various screen and color modes be judged subjectively by you, the operator. It is important to remember the capability of the particular monitor being used. With a monochrome monitor the Apple /// converts color images into a 16 tone gray scale; many monitors cannot handle more than 8 tones of gray at one time. Judgment should be made on the basis of a true black, true white, and several steps between the two ends of the scale. What is important is that there are no obvious gaps in the pattern. It may not be possible to distinguish one color from another on monochrome monitors, but a tone should exist in the area.

All of the tests will display a picture of Winston Churchill in the upper left corner, and a grid of diagonal lines in the upper right corner, followed by a prompt field that covers the bottom half of the screen, "If you can read this, and the tests are clear, press space bar, otherwise, press return." In general all the tests use the commands shown in Figure 3.

Figure 3

```
space bar   ----  TEST PASSES
return key  ----  TEST FAILS
escape key  ----  LEAVE VIDEO TESTS
left arrow  ----  RETRY THE TEST
```

There are 13 separate tests in the video test option and they will run in order as each test is passed or failed. They are in order in Figure 4.

Audio tests

The sound capabilities of the /// have three separate tests.

1) Soft bell -- the speaker will beep on and off. For each sound test, press the space bar if you hear the sound; return if not.

2) Hard bell -- same as above at a different pitch.

3) DAC output -- the digital to analog converter will produce a sound at the speaker output that periodically is of zero amplitude growing in amplitude then cut back to zero. In English this means that it starts with a soft sound which grows slowly and then cuts back down.

RAM test

If you have a 256K machine, you will have to select the 5V RAM test option because the 12V option only checks up to 128K. In either case, the first RAM test is to see if the machine is addressing the amount of RAM that it should have. The second RAM test is a test of each individual bank (section) of RAM. The machine will tell you which bank number it is testing and will give you a pass or fail message when it is done with them all. Don't worry if you see a graphic screen for a while, it is normal to see it.

Disk test

Do not go into the disk test unless you have at least one test diskette made. The program is not friendly enough to let you out gracefully if you do so. (The way out, if you have already made the mistake, is to empty the internal drive before answering its request for the number of external drives to be tested, and then to enter 0. It will finally report that it failed the test.)

Dear *ON THREE:*

I own a hard disk drive but find that it takes forever to do backups. I don't have a lot of things I need to back up, but when I do need to back up, it takes a **very** long time. Do you have any suggestions?

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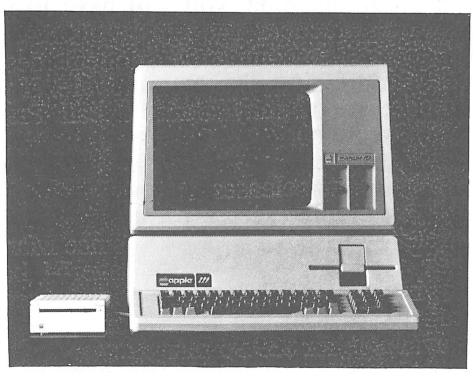

The UniDisk comes complete with a drive, interface card, cabling, documentation and driver disk. Priced at a remarkably low price of $499 plus $10 s/h.

Figure 4
Test

1) Hires mode 1 -- B&W pattern.

2) Hires mode 2 -- B&W pattern.

3) 280 x 192 color hires mode 1 - will appear as a negative image. A color monitor will show red and black.

4) 290 x 192 color hires mode 2 -- A color monitor will show a green and white or yellow pattern.

5) Super hires mode 1 -- B&W pattern as in number 1.

6) Super hires mode 2 -- B&W pattern as in number 1.

7) A hires test 1 -- On this and test 8, the screen will be divided into four horizontal sections. The color changes from blue at the top band to green then to yellow or orange. It is difficult to see the differences on a monochrome monitor.

8) A hires test 2 -- pattern as in 7.

9) Color bar and gray scale test -- vertical bars of the 16 colors will appear as shades of gray on a black and white monitor, yellow/green on a monitor ///, and real colors on a color monitor. The colors left to right are: white, aqua, yellow, green, pink, gray, orange, brown, light blue, medium blue, gray, dark green, light purple, dark blue, magenta, and black.

10) Apple II text mode 1 -- The screen will display:

"THE QUICK BROWN FOX JUMPS OVER THE LAZY DOGS.

abcdefghijklmonpqurstuvwxyz

0123456789 (in inverse)

Lines of flashing symbols and groups of numbers complete the display.

11) A large two will be drawn using the 2's to form this large numeral. It will be 15 columns x 20 characters.

12) Apple /// 40 column test mode -- The screen will be divided into 16 sections, one each for the 16 colors, each with the name of that color. Again monochrome monitors will not clearly depict the difference in all cases.

13) Apple /// 80 column test mode -- This includes characters and numerals in normal Apple three test mode. It prints a line of text designed to take upexactly one full line on the screen. The line says: "This line of text is exactly 80 characters long and uses the entire screen width."

Once you have selected the disk test, a prompt will ask you to remove the diagnostic diskette and replace it with the test diskette for drive 1. **Do not use anything but the test diskettes made by the diagnostic program,** doing so may lose some of your important data or programs. Make sure there is a test diskette in each drive to be tested. Once the test diskettes are in the correct drives, press the return key. Now the system will ask for the number of external drives. Once you enter the number, the test will run automatically. The test ends with a summary of results for each disk drive. When the test is completed you will be prompted to re-insert the diagnostic diskette and press the return key.

Keyboard test

This test almost seems like a test of the operator as much as a test of the keyboard and the ///. The screen is not very user friendly and more than one relatively sophisticated user has reacted with a 'huh?'. Basically, the first test is to use every key on the keyboard *before* using the space bar. Each key has a representation on the screen and that representation should disappear once the key has been pressed. The instructions at the top of the page indicate how to enter some special keys. Note the representation on the screen is meant to match the order of keys on the keyboard from top to bottom and left to right. The first E means the escape key rather than the E. If you start at the left hand corner and press every key on the keyboard (except the spacebar), you will get down to the ones with special instructions.

Once you have eliminated all but the space bar, you press it and you will be asked for some special key combinations. Slow down and read the instructions carefully before pressing any key.

A test of the numeric keypad works exactly the same way as the regular keyboard test.

ROM test: This test runs automatically and will say only "PASS" or "FAIL".

Confidence Disk

There is another diagnostic disk available, the Apple /// Confidence Disk which was designed for the /// plus. This disk it is not as commonly available as the Dealer Diagnostic Disk, but is definitely useful. The Confidence Disk has a newer program, with similar functions to the Dealer Diagnostic Disk, and is much more user friendly. In fact, it talks to you. If all the tests are run and your /// passes, it will tell you through the voice circuit, "Machine status normal; I'm OK." The major functional difference between this disk and the Dealer Diagnostic Disk is that the Confidence Disk does not have the extensive keyboard test. The video test image of Winston Churchill on the older program is replaced with an image of an Apple /// in the Confidence Disk. The same video tests are performed on the new image, in exactly the same order.

The advantage to this disk is in the way it tests memory. It tests each circuit just as before, but with a graphic display of each chip on the screen. A grid of white blocks that represent the memory chips appears on the screen. A blinking and moving apple singles the test is in progress. If a memory fault is detected: The apple stops blinking and moving, the white block corresponding to the faulty area of memory disappears, and the highlighted message, "fault detected as shown above" appears at the bottom of the screen. If this happens it is best to try the test a couple more times. Sometimes it is a fault in the test procedure rather than in memory. The memory test will continue until you stop it rather than arbitrarily stopping after one check.

The Confidence Disk has a *Continuous Test* option that is a very useful feature. It was designed to help detect the source of intermittent problems such as a corroded contact or overheating problems. The program cycles through tests 1, 2 and 3 (ROM, RAM, and Disk). It counts the number of cycles and displaying this number in the upper-right corner of the screen. The test will continue until you stop it by pressing the escape key, or until an error is detected. The longer the test runs, the more likely that an intermittent error will be uncovered. This is especially useful if you think that your /// may have a loose chip that only shows up after the machine heats up. You can set it up to run when you would normally be done with the machine for awhile, check the status in the later. It was designed so that dealers could test problem machines over night or even over a weekend. At least one dealer used this test before putting used ///'s on Applecare. The /// had to pass 12 hours on this disk to be approved.

To run the continuous test first make sure that there is a test disk in each of the external disk drives. Select the Continuous Tests option from the main menu, and press RETURN. The sound can be toggled off using N for no sound. If you have intermittent problems, it is suggested that the /// continuous test be run at least eight hours, overnight would be fine. If a fault is found, it will stop at the place of the test error with an appropriate message. If a fault is reported, retry the same test. If it detects the same problem, it is likely that you have isolated the problem. Most likely this a RAM error will be caused by dirt, corrosion, or loose chips. Try cleaning and re-seating the chips. If the problem continues, you should next try replacement chips.

Summary

There are several useful diagnostic tools for checking out the health of your ///. Either of the two diagnostic disks describe are useful and we would suggest that you purchase both as they will help pinpoint problems so that you may be able to avoid shipping your /// off for diagnosis and repairs. The ///'s own internal self-test ability is important and it is by far the most important and most sensitive test of RAM chips. This test will highlight a chip as bad when it may still be functioning. In many instances Apple ///s have been know to run well for years with as many as eight or nine chips indicated as bad. What this usually means is that chips that are not making proper contact and may well be the source of intermittent problems.

Beginning /// (continued on page 21)

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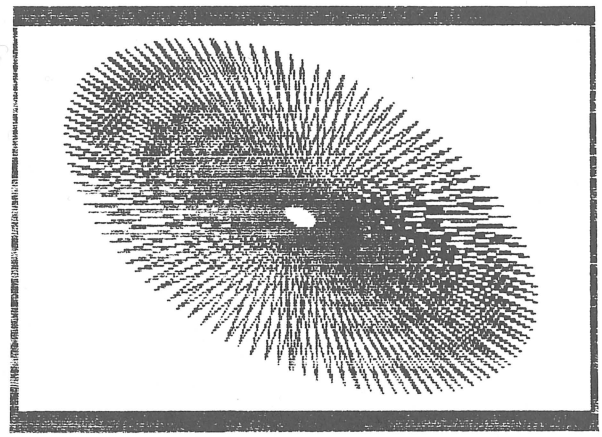

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Glossary of Terms

by Rutherford B. Thompson, Jr.

All the terminology you need

We all know that eight bits makes a dollar, but how many bits make a byte? What clock does not tell time? Every field of endeavor has its own language or jargon. the computer field is no different, even though the personal computer is being promoted as something everyone must have. Unless one is familiar with the language, he can easily become lost in trying to understand the instruction manuals. This article is designed to help the novice understand some of the more common terms he will find in the various computer publications and manuals, especially as they relate to the Edsel of the Apples - Apple ///.

ASCII - American Standard Code for Information Interchange. This is a 7 bit (2~7) code representing the characters on the keyboard and the special characters which may be generated by pressing the control keys. Seven bits can give 128 characters since the **OPEN APPLE** key adds 128 to the numeric code of any keystroke. With the use of the **CLOSED APPLE** key some programs give additional meanings to the keys beyond the original 256 identies.

BASIC - Language used in programming a computer. Business BASIC is the name used by Apple ///. to use this, the SOS interpreter file for BASIC must be loaded.

Binary numbers - Numbers consisting of only two digits, namely 0 and 1. Computers use this system internally, since they recognize only *off* (0) and *on* (1). Thus, the computer system is based on powers of 2. Humans usually use the decimal system, powers of 10, such as 10 fingers. The quantity 9 in the decimal system is 1001 binary. Compare with hexidecimal and octal.

Bit - The smallest amount of information handled by a computer. It is either zero or one (0 and 1) (off and on). basically the computer responds only to on and off and the fundamental language written in binary numbers.

Block - A unit of information 512 (2~9) bytes long. The length of files and the size of disks is reported in units of blocks. A normal 5.25 inch diskette will have 273 blocks of memory available, the Back-up disks store 280 blocks, the ProFile stores 9728 blocks.

Block device - A device that uses one block (512 bytes) of information as its basic unit of communication. A disk is one such device.

Boot - Start up computer with an operating program. the boot disk must be in the #1 drive and door closed. Turn on the computer and booting automatic. If the computer is already on and operating, place a boot disk in drive #1, close the door and press simultaneously the **RESET** button and the **CONTROL** key. With ProFile and Catalyst, the Catalyst boot disk is used and other operating programs can be directly accessed from the Catalyst menu without rebooting the computer. All boot disks must contain three files: SOS.KERNEL, SOS.DRIVER and SOS.INTERP. Most contain at least one other file--a program which is automatically run when the disk is booted.

Buffer - An area in the memory of the computer or other device, such as a printer that can temporarily hold information until the device can use it. This, in part, compensates for differences in operating speed of two devices.

Byte - A group of bits, usually 2^3 or 8 bits. Memory capacity is measured by the bytes of information which can be stored. Usually this is spoken of in terms of 2^10 or 1024 and abbreviated to K (normally K means 10^3 or 1000). Thus, four bytes is actually (2^2)*(2^10) = 4096 bytes; 128K = (2^7)*(2^10) = 131,027 bytes. The ProFile hard disk is rated at 4,980,736 bytes, 19*(2^18). Two bytes are required to designate an ASCII character. Two bytes are sufficient to designate 256 (2^8) characters.

Chip - Microprocessor unit (MPU). The heart of the CPU or mother board.

Clock - The circuitry that keeps various operations of the computer synchronized. it produces electrical pulses on the order of millions per second. Apple /// specification is 2 MHz peak, 1.4 Mhz average. The abbreviation MHz stands for megahertz. Mega = 1 million. Hertz = cycle/second.

CLOSED APPLE - Located on the bottom row of the keyboard right of **OPEN APPLE** key. This key, like **CONTROL** and **OPEN APPLE**, modifies the meaning of other keys for special operations with some programs or operating procedures. When used, it is depressed then the other key is pressed, just as when using Shift. In some cases, the **CLOSED APPLE** key will increase the speed of repetition of the key. Better uses are now being made of the key in some programs such as the Desktop Manager and Draw ON ///, both by *ON THREE*.

Configuration - Arrangement of software and hardware in a computer system. the configuration action of the SOS consists of the drivers (active) and their default parameters, determining how Apple /// communicates with the console, the drives and the other devices. Configuration is performed using the SCP (System Configuration Program) in the System Utilities volume.

Console - Keyboard plus the video display.

TAU presents...
An evening with R.J. Lissner

That's right! You can enjoy listening to R.J. Lissner, the author of /// E-Z Pieces, at the **Phase III** conference in October. The conference, open to all Apple users, will be the highlight of the year. The **PHASE III CONFERENCE & EXPOSITION** is the first major gathering designed explicitly for the business and professional user of **Apple** Computers. The seminars have been planned to provide the business/professional user (and developer) with tools and skills to increase productivity and profitability. The headquarters hotel is the **HYATT REGENCY WOODFIELD** in SCHAUMBURG, Ill., single or double occupancy. The hotel is about a 15 minute ride from Chicago's O'Hare Airport.

Conference Dates: Friday, October 2 through Sunday, October 4, 1987. Conference fee - $325; Companion fee (banquet, reception and exhibition only) - $75

To register, send your name, address, phone number, and business name and your position to: PHASE III, INC., c/o Randall Jackson, 1511 N. Bell, Chicago, IL 60622. Also use this address to request registration forms for hotel and exhibition information.

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Only $9.95 *plus $2 s/h*

Ranntings

by Richard and Lavona Rann

Are you an expert?

Practical expertise

Have you ever put much thought into the concept of expertise? It is an interesting concept and one that is applicable to us as /// owners. The term expert is one that is widely used and has both positive and negative connotations. The negative side is aptly described by a definition given at a 1940's Columbia University commencement by Nicholas Butler, "An expert is one who knows more and more about less and less."

A more positive definition is found in Webster's New World Dictionary, "a person who is very skillful or highly trained and informed in some special field". The difference between the definitions lies in the degree of specialization and the needs of the definer.

In terms of the ///, if we were writing a new compiler and needed to understand some detail from the internal workings of SOS, we would need someone who had specialized in the intricacies of SOS. They would have to know more about a more focused subject. On the other hand, if we wanted to know how to set up a custom printer in /// E-Z Pieces, the SOS expert might be no help at all. We would either need a /// E-Z Pieces expert, or a generalist that knew enough about a bunch of things to be what we will call a 'practical expert'.

We are fortunate to still have both kinds of experts in the /// community. No matter the negative comments applied to those who have really specialized. A master, wizard, or expert, by any name, is nearly priceless when you need one. There are still a few well known names that most of us would generally call Apple /// experts. We appreciate them, and recognize that we are fortunate that they are still around and helping us as a community. There aren't many of them. You certainly can't find them as simply as you could an expert on a MAC, or an IBM PC. The simple facts are that it takes time and money to accumulate and maintain expertise. Our dwindling community is not likely to generate many new experts to replace those that move on to more lucrative pursuits.

Now for the good news

The practical experts available to help each of us with our Apple ///'s, number in the hundreds (or more). Better yet, they are very easy to find.

Where are they? Stop and think a minute. Let's look again at that definition of expert and see if we can isolate what it means in terms of what most of us need in the way of help concerning our ///'s. First, look at our needs. We usually need someone that can help solve an individual problem using a specific piece of software, or with moving data between different programs. The important point is that our needs are quite limited and generally relate to applications. In terms of these needs, the type of expertise we generally need is one of a certain level of skill or proficiency with using one program to meet practical needs. This is a practical expert; one who can make the program do the job rather than one who has to understand why or how the program works. These practical experts are the people that user their ///'s on a regular basis.

You are probably a practical expert. Most that are, don't realize it.

Not long ago we were talking to a man who owned and operated a successful business in which he used an Apple /// to keep his records. In the course of the conversation the man described the decision process he used to select one software package over another. The process of selection covered some trial and error as he investigated and discarded several possible solutions along the way. In the end, his business was set up to run the way he believed best. He had discarded an accounting package to set up his own accounting system using a general data base program (/// E-Z Pieces) and file formats he created.

We were surprised by the man's efforts and success, but when we asked him to share some of his expertise with fellow /// users he was reluctant. "Oh, you can't mean that," he said. "I'm not an expert. I only did what I had to, nothing more." What he did was find a solution to his specific problem, but he failed to see the value of his accomplishments to others. He became an expert in the problems he faced. Unfortunately for others about to face the same problems, he sees Apple /// expertise in the narrow definition. He, and many of us, have been deceived by a myth that an expert should know everything.

In the past, there have been people that did know everything, or nearly everything, about a particular computer or a particular technology. That is becoming much less likely now that computers have become more sophisticated and the types of software available have become more varied. When it comes to the nebulous area of general problem solving, there are no experts in the finite sense. No one knows everything. Our acquaintance is as much an expert as anyone. He has built workable solutions that fulfill his criteria. Along the way he has learned enough about the workings of the Apple /// to be competent in its use. From our experience running the TAU Helpline, we can attest that his expertise would be of great value to many facing similar business problems.

We in the /// community need these sources of expertise

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Selector /// program switching utility	$99.00	$7.00
Sider10, 20 mb Driver and Documentation only	$159.00	$3.00
/// E-Z Pieces	$135.00	$3.50
Unidisk ///.5 disk and documentation only	$50.00	$3.00
Unprotect Driver	$19.95	$2.00
Hardware		
Apple /// Unidisk ///.5 (800K 31/2" disk drive w/interface, driver & documentation)	$499.00	$10.00
Apple //e Mouse and Interface card (Use with Draw ON and Desktop Manager)	$160.00	$5.00

Product	Price	S/H
Interlace Kits***	$75.00	$3.00
MicroSci A3 140K Disk Drive#	$225.00	$6.50
MicroSci A143 560K Disk Drive#	$325.00	$6.50
ON THREE O'Clock	$49.95	$3.00
Reconditioned 512K Apple /// w/monitor ///	$1148.00	$50.00
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Xebec Sider 10Meg Hard Drive	$800.00	$35.00
Xebec Sider 20Meg Hard Drive	$950.00	$35.00
256K Apple /// w/ monitor	$749.00	$50.00
256K Memory Upgrade, 128 to 256K	$150.00	$10.00
512K Memory Upgrade, 256K to 512K (Remit $324 and $25 cash or $35 credit when old board is returned.)	$324.00	$10.00
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and we need to share our wide variety of practical expertise. Only a relatively small number of us have accepted the fact that we have our own areas of expertise. Even more important than that small number, is the fact that it is an even smaller minority of us that have taken active steps to share that expertise with others.

The essence of the problem is in the general cultural and social environment. The computer industry is built on expertise. Computer designers and engineers must develop a computer, then someone must write an operating system, and finally, application programs must be written. All these are done by people who have proven ability in their fields. Many of them are recognized as leaders. In our particular Apple /// family many of the leader/experts names are familiar. They are not only experts, but they are enthusiasts, too. They do things like publish magazines, write software, develop hardware, and run bulletin boards or user groups. They write articles explaining their interests, and here is where the difficulty starts. What is created is an unfair picture of who is an expert, and what constitutes expertise.

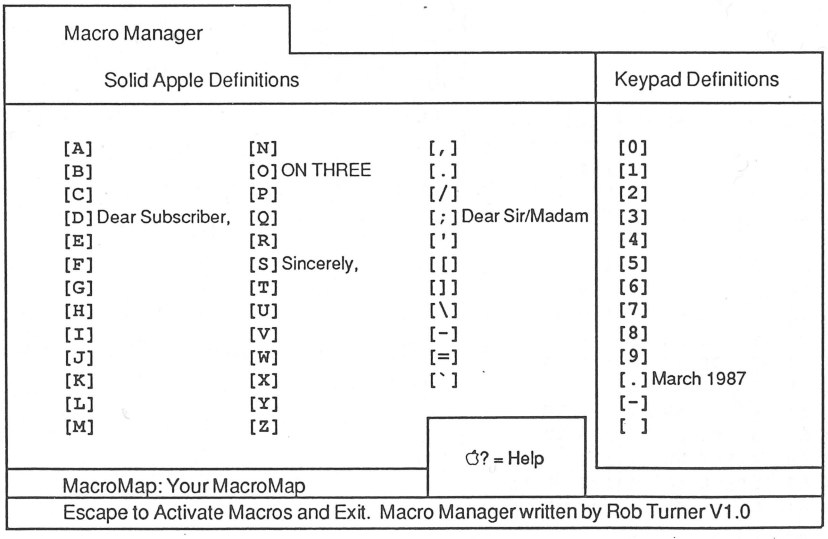
No one would argue that someone writing about a topic like SOS interrupts would probably qualify as an expert. Many of us seem to have forgotten, or never realized that not all areas of expertise are computer technical. What about the accounting solutions of our businessman acquaintance? Many people will face computing problems such as keeping accounting records. The expertise of our businessman may be of more use to a wider audience than some of the very technical topics. It depends upon the needs of the audience.

It would be far too easy, and equally as unfair, to blame the publishers of computer magazines, and even the publishers of user group newsletters for not opening their doors to our practical experts. The reason they don't print more *practical* things is quite simple. They can only publish the manuscripts they receive. Our businessman would never have dreamed that he did anything that might be worth an article in a magazine.

Our goal in this month's column it to convince you that your areas of practical expertise are important, and to get you to share them. The kinds of problems that you have had to overcome and solve are inherently interesting to others that face the same problems. Don't fall into the trap of thinking: "If I can do it, then anyone can; so it can't be much." That trap is based on a falsehood, and is a form of humility that is essentially harmful to yourself as well as to the whole /// community. There is no monopoly on solutions. The business person, hobbyist, technician and casual user all have solutions, and the level of technical expertise may not be the deciding factor when measuring the practicality of the solutions. Spreading information and a variety of solutions is important to us all.

ON THREE *presents*

Macro Manager



Macro Manager allows you to define a single keypress as a series of keystrokes you can play back anytime. You can also record over 2,000 keystrokes as you type and invoke them later by pressing one key. One MacroMap™ can hold 50 defined keys, called macros.

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ON THREE *presents...*

ASCII Chart

Ascii Conversion Table

Dec	Hex	Cr	Dec	Hex	Cr	Dec	Hex	Cr	Dec	Hex	Cr	Dec	Hex	Cr	Dec	Hex	Cr
0	00	NUL	19	13	DC3	38	26	&	57	39	9	76	4C	L	95	5F	_	114	72	r
1	01	SOH	20	14	DC4	39	27	'	58	3A	:	77	4D	M	96	60	`	115	73	s
2	02	STX	21	15	NAK	40	28	(	59	3B	;	78	4E	N	97	61	a	116	74	t
3	03	ETX	22	16	SYN	41	29	)	60	3C	<	79	4F	O	98	62	b	117	75	u
4	04	EOT	23	17	ETB	42	2A	*	61	3D	=	80	50	P	99	63	c	118	76	v
5	05	ENQ	24	18	CAN	43	2B	+	62	3E	>	81	51	Q	100	64	d	119	77	w
6	06	ACK	25	19	EM	44	2C	,	63	3F	?	82	52	R	101	65	e	120	78	x
7	07	BEL	26	1A	SUB	45	2D	-	64	40	@	83	53	S	102	66	f	121	79	y
8	08	BS	27	1B	ESC	46	2E	.	65	41	A	84	54	T	103	67	g	122	7A	z
9	09	HT	28	1C	FS	47	2F	/	66	42	B	85	55	U	104	68	h	123	7B	{
10	0A	LF	29	1D	GS	48	30	0	67	43	C	86	56	V	105	69	i	124	7C	|
11	0B	VT	30	1E	RS	49	31	1	68	44	D	87	57	W	106	6A	j	125	7D	}
12	0C	FF	31	1F	US	50	32	2	69	45	E	88	58	X	107	6B	k	126	7E	~
13	0D	CR	32	20	SP	51	33	3	70	46	F	89	59	Y	108	6C	l	127	7F	DEL
14	0E	SO	33	21	!	52	34	4	71	47	G	90	5A	Z	109	6D	m			
15	0F	SI	34	22	"	53	35	5	72	48	H	91	5B	[	110	6E	n			
16	10	DLE	35	23	#	54	36	6	73	49	I	92	5C	\	111	6F	o			
17	11	DC1	36	24	$	55	37	7	74	4A	J	93	5D	]	112	70	p			
18	12	DC2	37	25	%	56	38	8	75	4B	K	94	5E	^	113	71	q			

RETURN for more
ESCAPE to leave.

This Desktop Manager module lists the decimal, hexidecimal and corresponding character values of all ASCII keyboard characters. A second screen shows the decimal and hexidecimal equivalents of keypresses which include the control key. This keypress table can be invaluable when you need to know printer commands to enable different printer modes. The ASCII table is a necessary tool for programmers of all skill levels. Why not have them both at your fingertips? Only $9.95 plus $3 s/h.

256K RAM Upgrade

by Edward N. Gooding, Sr.

Time to beef up your RAM?

This article describes the procedure for upgrading an Apple /// from a 12 volt-128K RAM system to a five volt-256K RAM system. This upgrade involves an exchange of the Memory Board, the removal of a resistor, the creation of a solder bridge, and the exchange of two PROM chips. These instructions must be followed **exactly** or a malfunction can result.

This upgrade is only to be performed on 128K RAM systems with Memory Boardshaving part number 610-4128, and Main Logic Boards (MLB's or motherboards) of post-14,000 serial number systems, identified by a white dot near the I/O slots (location I1).

Tools and parts needed

- A **slotted screwdriver** to remove the ///'s Peripheral Access Cover.
- A **#2 Phillips screwdriver** to remove the MLB's Access Cover.
- An **IC (integrated circuit)** puller or small, narrow slotted screw driver.
- A 25 watt **soldering pencil.**
- A small amount of 60/40 **rosin core solder.**
- A **damp sponge** to wipe the soldering pencil on to clean it.
- Thin **copper wire,** preferably 22-28 gauge thickness.
- A knife or **crimping tool** to remove insulation from the 22-28 gauge wire.
- **Diagonal cutters,** or other small wire cutters.
- **Needle nose pliers** to hold the wire during soldering.
- A 5 volt, **256K Memory Board.**
- **PROM IC** part number 342-0061.
- **PROM IC** part number 342-0063.

Note: Both PROM's and Memory Boards are sold by *ON THREE* for $150.

Removal of the Main Logic Board and Memory Board

To remove the Main Logic Board and Memory Board, follow the following directions to the letter.

First of all, power down the Apple ///. Then, disconnect the AC power cord from the source and then from the power receptacle at the backof the ///. Also, disconnect all external cables from the back of the ///.

Remove the Peripheral Access Cover, and then remove all interface cards in slots 1-4. The cover is removed by turning the two capture screws 1/4 turn only. They will not fall out, but are retained in the ///'s cabinet. The two screws are located under the Peripheral Access Cover, at the two corners nearest the keyboard.

Replace the access cover on the /// after removing any inter-face cards. It is not necessary to tighten the screws at this time. Place the Apple upside down on a soft pad. The rear of the Apple should face you.

Locate the 10 Phillips screws around the edge of the Main Logic Board access panel. Depending upon the type of bottom pan, there may be one or two additional recessed screws located in the rear of the bottom pan. The Main Logic Board access panel will be the larger of the twopanels on the bottom of your ///. The smaller, rectangular shaped access panel allows you to remove and replace your ///'s power supply. You do *not* need to touch that for this procedure.

Remove the 10-12 Phillips screws that secure the larger access panel. **Caution:** The Main Logic Board is attached to the panel, and is still connected electrically to the keyboard, internal disk drive, speaker, and the power supply. Cable length allows the access panel to be tilted from the chassis about 45 degrees only, until you disconnect them.

Slowly tilt the access panel up from the side closest to the power supply. Allow the opposite side of the panel to remain resting on its edge in the small groove around the access panel.

While supporting the Main Logic Board with onehand, disconnect the power supply cable from it. This is best done by grasping the connector and rocking it back and forth from side to side as you pull on it. Note that it is designed in such a way as to prevent you from connecting it backwards when you reassemble your ///.

Now let the power supply side of the Logic Board down, and lift the side of the Main Logic Board that is furthest from the power supply. You will note two ribbon cables that connect the keyboard and the internal disk drive to the Main Logic Board. You will also note a double-stranded wire with a white Molex connector that connects the internal speaker to the Main Logic Board. You should remove all three of these connectors. Be sure to note which ribbon cable goes where, since they both look alike. Note also that the ribbon cable connectors have a tab on one side that will prevent you from inserting them back incorrectly when you re-assemble your ///. It does **not** matter how you orient the speaker connector when you re-install it.

If you have installed the video interlace kit, and/or the clock battery backup kit, you will also have to disconnect these cables in order to fully remove the

Main Logic Board from your ///.

The Main Logic Board can now be fully removed from your ///. You should place it on a flat work surface to continue this procedure.

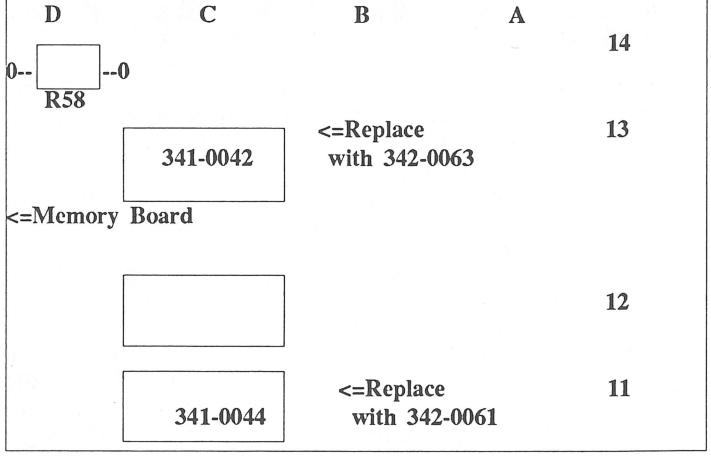
Using both hands, remove the existing Memory Board from the Main Logic Board. You will note that the Memory Board is piggy-backed to the MLB. They are generally mounted very tightly, and unless you are lucky, you will have to apply a lot of *careful* force to fully remove the Memory Board. Work with one end of the Memory Board at a time, rather than trying to remove it evenly at all four corners. I generally grasp one corner of the Memory Board with my right hand (since I'm right-handed) and place my left hand on the MLB to support it, and pull straight up on the corner. A slight rocking motion will sometimes facilitate the removal process. After I get the one corner up, I will work on the other corner from the same end of the board. When I get that, I move to the other end of the Memory Board and then remove the two remaining corners and lift the Memory Board away from the MLB. If you should happen to bend some of the pins on the MLB, don't panic, you can usually just straighten them back out with no problems. If you break one, you are in trouble.

PROM replacement

On the MLB, locate the IC that is located at coordinate C13. The coordinates are displayed as white letters on one side of the MLB, and as white numbers on the perpendicular side of the MLB, and are used like X,Y coordinates on a graph. The IC (integrated circuit) at C13 is identified by the part number 341-0041 printed on the

Figure 1

This is a diagram of the Main Logic Board and the approximate locations of the PROM chips and the R58 resistor.



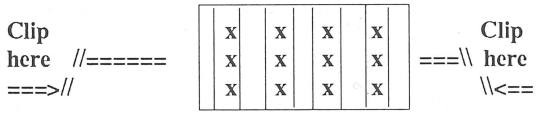
MLB, and on the PROM chip, also.

Remove this PROM chip with the use of an IC puller tool (looks like large tweezers with hooks on the ends, and can be purchased at any Radio Shack or electronics store). You can also use a small, slotted screwdriver and *carefully* insert it between the chip and its socket at one of the two narrow ends of the rectangular chip. Carefully pry the chip up with the screwdriver until you can grasp it with your hand and remove it. Replace this IC with PROM IC part number 342-0063. Be sure to install the PROM in the same direction as the one you removed. You can double check this by ensuring that the writing on the chip is oriented in the same direction as the writing on all the other chips on the MLB.

Also locate the IC at MLB coordinate C11 (identified by part number 341-0044 on the MLB and on the PROM

Figure 2

R-58 Resistor before clipping its lead



Main Logic Board

Note: Be careful not to damage the parts or traces (the little gold paths that electrical current follows on your MLB) on or near the vicinity of the resistor leads.

itself). Replace this IC with PROM IC part number 342-0061.

Resistor removal and solder jump

Locate the resistor R58 at coordinate D14. It will look like a skinny tube about 1/2" long,with colored bands around it and will be connected to the MLB by wire connectors at each end of the resistor.

With a pair of diagonal cutters, remove this resistor by cutting the wire leads at each end of it. Refer to the diagram in Figure 2.

Observe the two tiny, triangular or quarter-moon shaped solder pads that were exposed when you removed the resistor. They should lie under, and perpendicular to the R58 resistor. You will note that there is a blank space between these two pads where you can see the fiberglass

Figure 3

R-58 - Before bridging solder pads

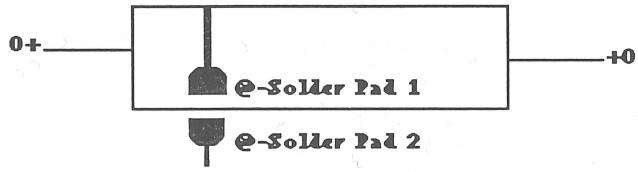
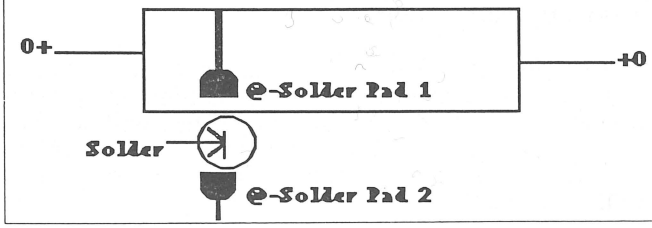


Figure 4

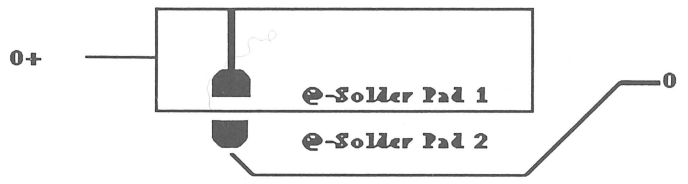
R-58 - After bridging solder pads



portion of the MLB. You need to "bridge" these two solder pads so that electrical current can flow between them. Refer to the two top-view diagrams in Figure 3 and Figure 4, respectively:

First, melt a small drop of solder on both of the solder pads, then take a 1/2" length of very thin electrical hookup wire (22-28 gauge) and "tin" it (coat the wire) with the solder. Also make sure to tin the soldering iron that you will use by applying solder to the pencil and allowing the solder to flow freely around its tip. Wipe any excess solder off with the damp sponge. When properly tinned, the soldering pencil should exhibit a shiny, silvery appearance on its business end. If it does not, repeat this process until it does. Tinning allows the easy transfer of heat to the parts to be soldered. As you work, periodically wipe the tip of your soldering pencil on the damp sponge to wipe off any dirt or oxidized solder. Also be sure to re-tin the pencil periodically.

Figure 5
R 58 - After bridging solder pad to resistor lead
Edge of Main Logic Board



Caution: Be extremely careful not to apply too much heat to the soldering pads. Damage will result!! If you observe the two second soldering rule, this will not happen.

Note: Be sure to use a low-wattage soldering pencil, *not* a solder gun. You can buy a solder pencil from Radio Shack for about $6. **Never** hold the tip of the solder pencil to the MLB, or any electronic component for more than two seconds, as more than that will damage the circuit or worse, pull the gold electrical traces off of the MLB.

Hold the wire down across the two solder pads with a pair of needle nose pliers, and with a sweeping motion run the soldering pencil along the length of wire from one solder pad to the other. Use your diagonal cutters to clip the excess wire away. A good solder connection will be evidenced by a shiny appearance, as well as by an electrically and mechanically sound connection. If you have a multi-tester or continuity tester, you can test the connection before you go any further.

Note: If you don't feel comfortable about bridging the two pads together because of the limited amount of working space, you can use a 1 to 1-1/2" inch length of 22-28 gauge electrical hookup wire. Solder one end of the wire to the small piece of wire that remains on the MLB from where you clipped the *left* end (oriented with the edge of the MLB closest to you) of the resistor.

Solder the other end of the hookup wire to the solder pad *furthest* from your position. This will work just as well. I would also recommend that you leave the insulation on this wire, except for 1/8" at each end that should be stripped for soldering. Refer to Figure 5 to see a diagram of this connection.

Memory Board replacement

Note that the Memory Board has notches at two of its corners. *It is very important to make sure that the side of the Memory Board with these notches is closest to the four peripheral slots.*

Align the connectors of the replacement 256K RAM Memory Board over the pin connectors of the MLB. The best way to do this is to tilt the Memory Board and align the pins on each side and lower the raised edge slowly, starting the next pins on each side as it is lowered.

Check that all the male pins are started correctly into the female connector of the Memory Board. If any of the male pins are not properly started, lift up the Memory Board slightly and move it back and forth until the pins are correctly aligned.

Once the pins of the connectors are all aligned, gently but firmly push straight down on the connectors on both sides of the Memory Board until the connectors are fully bottomed out.

Main Logic Board replacement

To reinstall or replace the logic assembly, reverse the procedure as outlined in the first 10 paragraphs under the subheading, "Removal of the Main Logic Board and Memory Board," as mentioned above in this article.

Make sure that all cables are reinstalled correctly and are not crimped or punctured by mounting hardware.

Testing

Use the Apple /// Confidence diskette for performing diagnostic tests of the 256K RAM upgrade. I would recommend selecting continuous testing, and let it run for a least 30 minutes without interruption. This will allow your ///, and the new RAM chips to fully warm up. I usually set mine up before I go to bed, and let it run all night. If my /// is still chugging away when I wake up, then I can be pretty assured that I have successfully upgraded my /// to a 256K system that will run cooler and therefore more reliably due to the lower power drain of the five volt Main Logic Board and Memory Board. It makes me cry to remember how I paid my Apple dealer $800 to do this to my first ///!! Now you can do it yourself for about one fourth of that cost.

Beginning /// (continued from page 11)

With this article and our prior one on cleaning and reseating chips, you now know what tools are needed, and have knowledge to find and repair the most common difficulties with your Apple ///. Over the past years, the /// has proven very reliable, and yet it has remains susceptible to a few common difficulties. Most problems are manageable without the aid of a costly repair service. This month's material will help determine when your /// needs the help of an expert. Setting disk drive speed is one more topic under the heading of general maintenance. It will be covered in a future column.

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If you've been holding out for a lower price on the Graphics Manager for the ///, here it is! Take advantage now. The complete graphics utility for the Apple /// interfaces to **Draw ON** ///™ and all graphic programs and allows printing enlarged or reduced portions of the graphics screen, normal or inverted, single or double density with four rotation values.

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Do you wish to compute more efficiently?	☐	☐
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If you answered **YES** to any of these questions, then you need a hard disk. A mass storage device capable of holding **INCREDIBLE** amounts of data for your retrieval at a couple of keystrokes. And if you need a hard disk, then you need the best. Try a **Xebec Sider 10 Megabyte or Sider][20 Megabyte hard disk** from **First Class Peripherals** and ***ON THREE.***
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Sider][(20 Megabytes) = $950.00*

*plus $35.00 s/h
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Recipe for a Menu

by Charles G. Barton II

Tasting a homemade menu

The purpose of this article is to present a method for making a self-booting diskette which will present a two-screen menu. Each screen will present five options to the program's user.

The first menu, called the Main Menu, will permit you to perform two utility functions using programs supplied on your Apple Business BASIC disk, as well as catalog any drives on your system. Another option will run the second *page* of the menu. The final option available on the Main Menu is labeled "Stop", and permits the user to exit the Main Menu altogether to a blank BASIC screen.

The second *page* of the program will allow you to select and run four of your own BASIC programs. The fifth option on the Second Menu will return you to the Main Menu.

Getting ready

To start, you need a blank, formatted diskette which will be called "Menu Disk" from this point forward and the Apple Business BASIC diskette which came with your Apple /// when purchased.

The first step is to boot your Systems Utilities program. Using the *File Handling Commands*, copy the following eight files from the Apple Business BASIC diskette to Menu Disk:

1. HELLO
2. TIMESET
3. VOLUMES
4. TIMESET.INV
5. VOLUMES.INV
6. SOS.DRIVER
7. SOS.INTERP
8. SOS.KERNEL

Still using the File Handling Commands, *unlock* "HELLO", "TIMESET", and "VOLUMES" on Menu Disk. (If you need to reconfigure the SOS.DRIVER on your Menu Disk, unlock that file as well and make the necessary changes with the System Configuration Program (*Relock* the SOS.DRIVER on Menu Disk before exiting the Systems Utilities program.)

From this point forward, you will be using only the Menu Disk which should now be placed in the primary disk drive (.D1).

Changing the "HELLO" program

Boot your new Menu Disk. *Load* the "HELLO" program and *delete* all program lines. (See the Apple Business BASIC manual, volume 1, page 12 for deleting program lines. Page 19 gives instructions for load and save commands.) Enter the following program lines in their place:

```
10   HOME
20   RUN "MAIN.MENU"
```

Now save the above program as "HELLO" on the Menu Disk. I also suggest *locking* the "HELLO" program by typing LOCK HELLO - that way you can't inadvertently alter or delete the program.

Altering the Business BASIC programs

Earlier you copied and *unlocked* program files named "TIMESET" and "VOLUMES" from the Apple Business BASIC disk to your Menu Disk. In this step, you are going to change both programs, so that after they have done what you want, either program will return you to the Main Menu.

Load the "TIMESET" program and add the following lines to the program:

```
200   IF KBD=27 OR KBD=13 GOTO 4000
4000  TEXT:HOME:CLEAR
4010  RUN "MAIN.MENU"
```

Save and *lock* the "TIMESET" program. *Load* the "VOLUMES" program and add these program lines:

```
5     HOME
300   PRINT:PRINT:PRINT
310   IMAGE 80C
320     PRINT USING 310;"*** PRESS ANY KEY TO RETURN
        TO MENU ***"
350   GET PRESS$
370   IF PRESS$<>"" THEN CLEAR:RUN
        "MAIN.MENU"
```

Save and lock the "VOLUMES" program.

Main Menu program

The Menu Program controls the selection of the options available on the Main Menu as well as the screen format on which the Menu is displayed. The MAIN.MENU program (rather than a separate program) also controls the *catalog* option on the Main Menu.

Enter the program shown on Page 25. Save and lock it as "MAIN.MENU" when you are finished.

The ON ERR (lines 820 and 920) are included as part of the catalog option so that your program will not break down in the event that: a) no disk is in the specified drive; b) the drive's door is open; or c) no drive exists for the number or pathname entered by the user. The OFF ERR

commands found in lines 880, 985 and 1020 and switch the ON ERR command off before returning to the Menu.

Line 530 is an error trap and will continue to present the user with the Main Menu until a number from 1 to 5 is input.

Lines 420-460 on the "MAIN.MENU" program are a loop, although the lines do not resemble the more common FOR and NEXT loop statements as described on page 111 of the Apple Business BASIC manual. I chose the less familiar method because it illustrates the use of READ and DATA statements within a program.

In my program, each DATA statement on lines 115-140 is READ by line 430, assigned the variable name OPTION$, and printed to the screen by line 450. The loop (line 430 to line 440 to line 450 to line 460, and back to line 430) continues until line 440 finds that OPTION$ = "END OF DATA" as established by the DATA statement on line 140. At that point, because the statement on line 440 is now true (that is, that OPTION$ does indeed equal "END OF DATA"), the program exits the loop and continues running on line 470, just as instructed.

Data statements (in this case, lines 115-140) can appear anywhere in your program without adverse consequences and are *read* in the order that you list them. Each DATA statement is read only once. If you try to read any data statement a second time, the program will stop with an error message unless you incorporate countermeasures: after all data elements have been read the first time, inserting a clear (line 90) or restore (line 470) command will allow the statements to read again, in this case starting with the first data statement on line 115.

The *restore* on line 470 isn't strictly necessary because the program's execution is always redirected to line 90 which contains a *clear* command. However, in a different program that may not be the case and line 470 presents one method for dealing with the problem.

The IMAGE 80C statement on line 95 is used to center printed output on a standard 80 column screen (or standard 8 1/2" paper, if the output is directed to the ".PRINTER").

The IMAGE 80X statement on line 100 prints 80 spaces which, when *inversed* and invoked with the *print using* command (as on lines 345 and 360), form a solid light-on-dark bar across the screen, thereby forming part of the menu's border. Blank spaces, usually dark on the screen, are returned to that state by the command *normal.*

The GET command (line 990) will accept any key typed at the console, and will return the user to the Main Menu. The difference between a GET command and an INPUT statement is that GET does not require the user to press the RETURN key after touching any key on the keyboard.

The VAL function on line 540 creates a numeric variable named RESPONSE from the string RESPONSE$. On line 250, the program is directed by the ON RESPONSE GOTO... statement to branch to lines 620, 630, 640, 650 or 670, depending on whether the value of RESPONSE is 1, 2, 3, 4, or 5 respectively.

The VPOS/HPOS commands found throughout the program are a precise means of positioning the cursor on the screen.

The second menu

As noted at the beginning of this article, this program offers a first page menu of utility options, and a second menu screen which will allow you to run any of your own BASIC programs.

The second program shown is needed for the second screen. Although you could type it in line for line, there is a faster way: *load* (but don't *unlock*) "MAIN.MENU" and edit it as follows:

Alter the DATA lines 115-130 to reflect the name of each of your BASIC programs (Don't forget prefixes or pathnames). Do the same with lines 620, 630, 640, and 650. Be sure to enclose the names of your BASIC programs in quotation marks.

Change line 135 to read: 135 DATA "5. RETURN TO MAIN MENU"

Change line 250 to read: 250 ON RESPONSE GOTO 620,630,640,650,660:REM VARIABLES USED IN

Change line 660 to read: 660 HOME:RUN"MAIN.MENU"

Alter lines 620, 630, 640, and 650 by entering the file (and path, if necessary) names of each of your programs in place of the names "TIMESET", "SECOND.MENU", etc.

Delete the following lines: 280, 670-1120, 1230-1235, and 1250-1265.

Change line 150 to read: MENU$="SECOND MENU". Do the same with line 1240.

On line 110, change SPACE25$ to SPACE27$ and add two blank spaces between the quotation marks. The line should now read: SPACE27$=" ":REM 27 BLANK SPACES.

Change the variable name SPACE25$ to SPACE27$ on lines 320, 340, and 1300.

Change the HPOS value on lines 325, 330, and 335 to HPOS=53.

Finally, *save* the changed program with the name "SECOND.MENU" and as before, LOCK it to save yourself from inadvertent deletion of the program.

In closing, this article was written for those individuals just getting started in BASIC programming, and contains information I learned the hard (and slow) way. Like most recipes, it will be fine to use it as is, but will be even better if it is personalized by your creativity.

For instance, you can design your own menu borders, enter additional error traps, and have the output from the catalog function directed to either the screen or a printer, as desired by the user.
Or, instead of running programs directly with the

"SECOND.MENU", you can have it run other menus, which in turn can lead to further menus and programs. So by all means, experiment with the *ingredients*..

```
10   REM
20   REM    ***********************************************
25   REM    *                                             *
30   REM    *            Main Menu program                *
35   REM    *          by Charles G. Barton II            *
40   REM    *          Copyright (c) 1987                 *
45   REM    *              by ON THREE                    *
50   REM    ***********************************************
55   REM
60   REM    ***********************************************
65   REM    *                                             *
70   REM    *              INITIALIZATION                 *
75   REM    *                                             *
80   REM    ***********************************************
85   REM
90   HOME:CLEAR
95   IMAGE 80C
100   IMAGE 80X
110   SPACE25$="                         ":REM 25 SPACES
115   DATA "1.  SET DATE & TIME"
120   DATA "2.  GO TO SECOND PAGE OF MENU"
125   DATA "3.  CHECK DEVICE STATUS"
130   DATA "4.  CATALOG FILES"
135   DATA "5.  STOP"
140   DATA "END OF DATA"
150   MENU$="MAIN MENU"
160   REM
190   REM    ***********************************************
191   REM    ***********************************************
195   REM    **                                           **
200   REM    **              MAIN ROUTINE                 **
205   REM    **                                           **
210   REM    ***********************************************
211   REM    ***********************************************
215   REM
220   GOSUB 300:REM DRAW MENU BORDER
225   REM
230   GOSUB 400:REM DISPLAY MENU OPTIONS
235   REM
240   GOSUB 500:REM REQUEST A SELECTION
245   REM
250   ON RESPONSE GOTO 620,630,640,650,670:REM SELECTION
255   REM
260   REM SEE LINE 1200 FOR: VARIABLES USED IN
265   REM                    THIS PROGRAM
280   GOTO 90
285   REM
290   REM    ***********************************************
295   REM    *                                             *
300   REM    *              DRAW MENU BORDER               *
305   REM    *                                             *
310   REM    ***********************************************
315   REM
320   HPOS=29:VPOS=2:INVERSE:PRINT SPACE25$;:NORMAL
325   HPOS=29:VPOS=3:INVERSE:PRINT"    ";:HPOS=51:PRINT"    ":NORMAL
330   HPOS=29:VPOS=4:INVERSE:PRINT"    ";:NORMAL:PRINT TAB(37);
      MENU$;:INVERSE:HPOS=51:PRINT"    ":NORMAL
335   HPOS=29:VPOS=5:INVERSE:PRINT"    ";:HPOS=51:PRINT"    ":NORMAL
340   HPOS=29:VPOS=6:INVERSE:PRINT SPACE25$;:NORMAL
345   HPOS=1:VPOS=8:INVERSE:PRINT USING 100;:PRINT;
350   VPOS=9:PRINT"    ";:HPOS=78:PRINT"    ";:NORMAL
355   VPOS=21:INVERSE:PRINT"    ";:HPOS=78:PRINT"    ";
360   VPOS=22:INVERSE:PRINT USING 100;:NORMAL:PRINT
365   RETURN
380   REM
390   REM    ***********************************************
395   REM    *                                             *
400   REM    *           DISPLAY MENU OPTIONS              *
405   REM    *                                             *
410   REM    ***********************************************
415   REM
420   VPOS=10
430   READ OPTION$
440   IF OPTION$="END OF DATA" THEN GOTO 470
450   PRINT TAB(29);OPTION$:PRINT
460   GOTO 430
470   RESTORE:RETURN
485   REM
490   REM    ***********************************************
495   REM    *                                             *
500   REM    *            REQUEST A SELECTION              *
505   REM    *                                             *
510   REM    ***********************************************
515   REM
520   PRINT:PRINT:PRINT:HPOS=22:INPUT"ENTER THE NUMBER OF ";:
      PRINT "YOUR SELECTION: ";RESPONSE$
530   IF VAL(RESPONSE$)<1 OR VAL(RESPONSE$)>5 THEN GOTO 90
540   RESPONSE=VAL(RESPONSE$)
550   RETURN
585   REM
590   REM    ***********************************************
595   REM    *                                             *
600   REM    *            EXECUTE A SELECTION              *
605   REM    *                                             *
610   REM    ***********************************************
615   REM
620   HOME:RUN"TIMESET"
625   REM
630   HOME:RUN"SECOND.MENU"
635   REM
640   HOME:RUN"VOLUMES"
645   REM
650   GOSUB 700:REM CATALOG SUBROUTINE
655   REM
660   GOTO 90
665   REM
670   TEXT:HOME:CLEAR:NEW
685   REM
690   REM    -----------------------------------------------
695   REM    -                                             -
700   REM    -        ROUTINE FOR CATALOGING FILES         -
705   REM    -                                             -
710   REM    -----------------------------------------------
715   REM
720   HOME:VPOS=6:HPOS=24:PRINT"DO YOU WANT TO...."
730   VPOS=8:HPOS=24:PRINT"1. CATALOG FILES ON A DISK DRIVE, OR"
740   VPOS=10:HPOS=24:PRINT"2. CATALOG FILES ON A HARD DISK, OR"
750   VPOS=12:HPOS=24:PRINT"3. RETURN TO THE MAIN MENU?"
760   VPOS=15:HPOS=24:INPUT"PLEASE ENTER THE NUMBER OF ";:
      PRINT"YOUR SELECTION: ";RESPONSE$:RESPONSE=VAL(RESPONSE$)
770   IF RESPONSE>=3 THEN GOTO 90
780   ON RESPONSE GOTO 800,900
790   RETURN
793   REM
795   REM    -----------------------------------------------
798   REM    -                                             -
800   REM    -        CATALOG FILES ON A DISK DRIVE        -
805   REM    -                                             -
810   REM    -----------------------------------------------
815   REM
820   ON ERR GOSUB 1000
830   HOME:VPOS=10:HPOS=20:INPUT"WHICH DRIVE NUMBER? (1, 2, ";:
      PRINT"3, OR 4): ";DRIVE$
835   IF VAL(DRIVE$)<1 OR VAL(DRIVE$)>4 THEN GOTO 830
840   IF DRIVE$="1" THEN PREFIX$=".D1":HOME:CAT:GOTO 860
845   IF DRIVE$="2" THEN PREFIX$=".D2":HOME:CAT:GOTO 860
850   IF DRIVE$="3" THEN PREFIX$=".D3":HOME:CAT:GOTO 860
855   IF DRIVE$="4" THEN PREFIX$=".D4":HOME:CAT
860   PRINT:PRINT USING 95;"***  PRESS ANY KEY TO RETURN TO ";:
      PRINT"CATALOG MENU  ***"
870   GET PRESS$
880   IF PRESS$<>"" THEN PREFIX$=".D1":OFF ERR:GOTO 720
885   REM
890   REM    -----------------------------------------------
895   REM    -                                             -
900   REM    -        CATALOG FILES ON A HARD DISK         -
905   REM    -                                             -
910   REM    -----------------------------------------------
915   REM
920   ON ERR GOSUB 1000
930   HOME:VPOS=7:HPOS=7:PRINT"ENTER THE COMPLETE PATHNAME ";:
      PRINT"OF THE DIRECTORY YOU WISH TO CATALOG..."
940   VPOS=9:HPOS=7:PRINT"(YOUR ENTRY SHOULD LOOK LIKE: ";:
      PRINT"'/HARD.DISK/DIRECTORY/ASSETS/', ETC.
950   HPOS=7:PRINT"BUT WITHOUT THE QUOTATION MARKS)"
960   VPOS=12:HPOS=7:INPUT"PATHNAME: ";RESPONSE$
970   PREFIX$=RESPONSE$:HOME:CAT
975   PRINT:PRINT USING 95;"***  PRESS ANY KEY TO RETURN ";:
      PRINT"TO CATALOG MENU  ***"
980   GET PRESS$
985   IF PRESS$<>"" THEN PREFIX$=".D1":OFF ERR:GOTO 720
990   REM
995   REM    -----------------------------------------------
997   REM    -                                             -
1000   REM    -    ERROR HANDLING FOR CATALOG PROBLEMS      -
1005   REM    -                                             -
1010   REM    -----------------------------------------------
1015   REM
1020   OFF ERR:HOME
1030   VPOS=4:HPOS=20:PRINT"THERE IS A PROBLEM WITH YOUR ";:
       PRINT"CATALOG REQUEST"
1040   VPOS=7:HPOS=20:PRINT"IT COULD BE THAT......."
```


ON THREE presents...

The Uncopyprotect Driver $19.95 plus $2 s/h

ON THREE has not changed its position regarding duplicating copyrighted programs for profit or to give away, but since many Apple /// software products are no longer supported, owners of AppleWriter ///, VisiCalc, and VisiCalc Advanced Version are facing the problem of what to do when a diskette "crashes." After much consideration we decided to proceed with a product to solve that problem. *The Uncopyprotect Driver* will allow you to make back up floppies of the above programs. For the first time, you can put your master disk in a safe place and boot on the duplicate.

Economically priced at only $19.95 plus $2.00 shipping and handling, the *Uncopyprotect Driver* comes with full documentation and will work with *Selector ///* so you will no longer require a "key" diskette. The *Uncopyprotect Driver* is sold for legitimate ***Archival*** purposes only. ***ON THREE does not condone*** and will not condone duplicating a disk for any other purpose.

```
1050    VPOS=9:HPOS=25:PRINT"1.  THERE IS NO DISK IN THE ";:
        PRINT"DRIVE, OR":PRINT
1060    VPOS=11:HPOS=25:PRINT"2.  THE DRIVE IS DAMAGED, OR":
        PRINT
1070    VPOS=13:HPOS=25:
        PRINT"3.  THE DRIVE'S DOOR IS OPEN, OR":PRINT
1080    VPOS=15:HPOS=25:PRINT"4.  THE PATHNAME IS INCORRECT, ";:
        PRINT"OR":PRINT
1090    VPOS=17:HPOS=25:PRINT"5.  YOU DON'T HAVE A DRIVE ";:
        PRINT"WITH THE NUMBER YOU GAVE":PRINT
1100    VPOS=22:PRINT USING 95;"***  PRESS ANY KEY TO RETURN ";:
        PRINT"TO CATALOG MENU  ***"
1110    GET PRESS$
1120    IF PRESS$<>"" THEN PREFIX$=".D1":GOTO 720
1185    REM
1190    REM   ********************************************
1195    REM   *                                          *
1200    REM   *       VARIABLES USED IN THIS PROGRAM     *
1205    REM   *                                          *
1210    REM   ********************************************
1215    REM
1220    REM   ------------------------------------------------
1225    REM   -                                              -
1230    REM   -           DRIVE$ = DRIVE NUMBER              -
1235    REM   -                                              -
1240    REM   -             MENU$ = MAIN MENU                -
1245    REM   -                                              -
1250    REM   -           PREFIX$ = DRIVE NUMBER             -
1255    REM   -                                              -
1260    REM   -           PRESS$ = 'GET' VARIABLE            -
1265    REM   -                                              -
1270    REM   -          OPTION$ = DATA STATEMENT            -
1275    REM   -                                              -
1280    REM   -          RESPONSE$ = USER'S INPUT            -
1285    REM   -                                              -
1290    REM   -    RESPONSE = NUMERIC VALUE OF RESPONSE$     -
1295    REM   -                                              -
1300    REM   -         SPACE25$ = 25 BLANK SPACES           -
1305    REM   -                                              -
1310    REM   ------------------------------------------------

10    REM
20    REM    ********************************************
25    REM    *                                          *
30    REM    *            Second Menu program           *
35    REM    *             by Charles G. Barton II      *
40    REM    *            Copyright (c) 1987            *
45    REM    *                 by ON THREE              *
50    REM    ********************************************
55    REM
60    REM    ********************************************
65    REM    *                                          *
70    REM    *              INITIALIZATION              *
75    REM    ********************************************
85    REM
```


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```
90    HOME:CLEAR
95    IMAGE 80C
100    IMAGE 80X
110    SPACE27$="                           ":REM 27 SPACES
115    DATA "1.  RUN (YOUR 1ST PROGRAM'S NAME)"
120    DATA "2.  RUN (YOUR 2ND PROGRAM'S NAME)"
125    DATA "3.  RUN (YOUR 3RD PROGRAM'S NAME)"
130    DATA "4.  RUN (YOUR 4TH PROGRAM'S NAME)"
135    DATA "5.  RETURN TO MAIN MENU"
140    DATA "END OF DATA"
150    MENU$="SECOND MENU"
160    REM
190    REM   ********************************************
191    REM   ********************************************
195    REM   **                                        **
200    REM   **              MAIN ROUTINE              **
205    REM   **                                        **
210    REM   ********************************************
211    REM   ********************************************
215    REM
220    GOSUB 300:REM DRAW MENU BORDER
225    REM
230    GOSUB 400:REM DISPLAY MENU OPTIONS
235    REM
240    GOSUB 500:REM REQUEST A SELECTION
245    REM
250    ON RESPONSE GOTO 620,630,640,650,660:
       REM EXECUTE A SELECTION
255    REM
260    REM SEE LINE 1200 FOR VARIABLES USED IN
265    REM               THIS PROGRAM
285    REM
290    REM   ********************************************
295    REM   *                                          *
300    REM   *              DRAW MENU BORDER            *
305    REM   *                                          *
310    REM   ********************************************
315    REM
320    HPOS=29:VPOS=2:INVERSE:PRINT SPACE27$;:NORMAL
325    HPOS=29:VPOS=3:INVERSE:PRINT"   ";:HPOS=53:
       PRINT"   ":NORMAL
330    HPOS=29:VPOS=4:INVERSE:PRINT"   ";:NORMAL:
       PRINT TAB(37);MENU$;:INVERSE:HPOS=53:
       PRINT"   ":NORMAL
335    HPOS=29:VPOS=5:INVERSE:PRINT"   ";:HPOS=53:
       PRINT"   ":NORMAL
340    HPOS=29:VPOS=6:INVERSE:PRINT SPACE27$;:NORMAL
345    HPOS=1:VPOS=8:INVERSE:PRINT USING 100;:PRINT;
350    VPOS=9:PRINT"   ";:HPOS=78:PRINT"   ";:NORMAL
355    VPOS=21:INVERSE:PRINT"   ";:HPOS=78:PRINT"   ";
360    VPOS=22:INVERSE:PRINT USING 100;:NORMAL:PRINT
365    RETURN
380    REM
390    REM   ********************************************
395    REM   *                                          *
400    REM   *           DISPLAY MENU OPTIONS           *
405    REM   *                                          *
410    REM   ********************************************
415    REM
420    VPOS=10
430    READ OPTION$
440    IF OPTION$="END OF DATA" THEN GOTO 470
450    PRINT TAB(29);OPTION$:PRINT
460    GOTO 430
470    RESTORE:RETURN
485    REM
490    REM   ********************************************
495    REM   *                                          *
500    REM   *            REQUEST A SELECTION           *
505    REM   *                                          *
510    REM   ********************************************
515    REM
520    PRINT:PRINT:PRINT:HPOS=22:
       INPUT"ENTER THE NUMBER OF YOUR SELECTION: ";RESPONSE$
530    IF VAL(RESPONSE$)<1 OR VAL(RESPONSE$)>5 THEN GOTO 90
540    RESPONSE=VAL(RESPONSE$)
550    RETURN
585    REM
590    REM   ********************************************
595    REM   *                                          *
600    REM   *           EXECUTE A SELECTION            *
605    REM   *                                          *
610    REM   ********************************************
615    REM
620    HOME:RUN"1ST PROGRAM NAME"
625    REM
630    HOME:RUN"2ND PROGRAM NAME"
635    REM
640    HOME:RUN"3RD PROGRAM NAME"
645    REM
650    HOME:RUN"4TH PROGRAM NAME"
655    REM
660    HOME:RUN"MAIN.MENU"
665    REM
1185    REM   ********************************************
1190    REM   *                                          *
1195    REM   *       VARIABLES USED IN THIS PROGRAM     *
1200    REM   *                                          *
1205    REM   ********************************************
1210    REM
1215    REM
1220    REM   ------------------------------------------------
1225    REM   -                                              -
1240    REM   -            MENU$ = SECOND MENU               -
1245    REM   -                                              -
1270    REM   -          OPTION$ = DATA STATEMENT            -
1275    REM   -                                              -
1280    REM   -          RESPONSE$ = USER'S INPUT            -
1285    REM   -                                              -
1290    REM   -    RESPONSE = NUMERIC VALUE OF RESPONSE$     -
1295    REM   -                                              -
1300    REM   -         SPACE27$ = 27 BLANK SPACES           -
1305    REM   -                                              -
1310    REM   ------------------------------------------------
```

One, Two, /// Forum

Suggestion box

You once asked readers what they'd like to see in *ON THREE*. Here's what kind of an Apple /// user I am, and what I'd like to see:

I have a 128K machine, which I bought new when the Apple /// first came on the market. I have two disk drives, and two Cursor ///s (paddles) that work just fine. I have a cheap monochrome CRT.

I assumed that the Apple /// would occupy the place in the market that the IBM PC does now, and that I could look forward to decades of buying and creating software and hardware. I, like everyone else, was sadly mistaken. Now I want to buy a new computer; I like the MacIntosh II, but do I dare risk another $6,000 in the Apple Company? Several experts have already warned me against the Apple IIGS, saying that it's another dead end. I have used my father's IBM XT extensively, and I didn't like it as much as my ///.

I still have the VisiCalc and AppleWriter /// that I bought with my machine. I wish I could buy Pascal. I also wish I could buy the advanced version of Applewriter /// I heard about that has a 'macro' function. If *ON THREE* offered this software at a reasonable price (like around $50.00) I'd buy it gladly.

I will have be forced to buy a new machine because I need the things the Apple /// can't do, like talk through a modem, hold a megabyte of RAM, and have access to a lot of software and peripherals, including games and recreation.

Whenever I read the IBM magazines I drool over the fantastic array of hardware and software available for PCs. But when I actually contemplate trying to work with that eye-busting screen display, that slow and unfriendly operating system, and the crippled IBM environment in general, I just can't force myself to take the plunge. My old Apple /// is a better machine than the brand-new IBM XT I wrote the last chapter of my novel on!

Speaking of that, readers might be interested to know that I recently completed a 375-page novel using the AppleWriter /// on my 128K machine. I couldn't have asked for a better word processor... except for the size of the memory. The novel is called CHARON'S ARK, and it will appear on the stands in August. It's a paperback science-fiction adventure, published by Del Rey. I have signed a contract for the novel's sequel, and am already a chapter deep into it.

What kind of articles would I like to see in *ON THREE*? I want BASIC programs, because that's all I can use. I would like animation and perspective graphics programs in BASIC. I want Pascal and some kind of way of getting into the guts of the machine (like PEEK and POKE). I would like drivers, and/or instruction on how to write drivers. I would like a graphics pad, or instructions on how to modify the Koala Pad plug to fit into a paddle port (if possible).

In the fairy godmother department, I wish someone would tell me how to make my machine use some command other than INPUT# to read the buffer of my Hayes Micromodem IIe. If whoever I'm on the phone with doesn't happen to send a carriage return character, INPUT# causes the program to just sit, waiting for the carriage return that isn't there. It can't see if the buffer is empty, it can't ask the other guy to send a carriage return, nothing. All I can do is reboot. In effect, I can't do anything with this modem. I could buy another modem and some software (assuming I can find such a thing) for $200 to $300. Do you have any suggestions?

Even if I have ranted and raved in this letter, I want you and your staff to know that I have an extremely high regard for the work you do. All of us poor Apple /// owners should get down on our knees every night and thank God for *ON THREE* magazine. May you live long and prosper.

Rick Gauger,
Bellingham, Wash.

As you mentioned, you are not the only one who was "sadly mistaken" when purchasing your Apple /// but most of the the /// users who still enjoy their machine, have learned to work around problems encountered.

You may think that the /// is dead, but just like a new car is maintained, we must maintain our ///'s even if that includes buying new, improved parts. *If you really enjoy your /// and do not wish to bury it because of the satisfaction you get when using it, then upgrade it and get the most out of it. If you wish to consider purchasing another computer, like the Macintosh II or the Apple IIGS, then go for it. I don't know who your* informants *were who said that the IIGS is a dying breed as the GS is one of the most popular computers around today and the market is expanding. For your use of the computer, I don't believe you can find a cheaper and better setup than the ///. For instance, /// E-Z Pieces is available for $135 while Apple // users must use AppleWorks, which costs $250.*

Concerning software programs for the ///, you can buy Pascal for $99 plus $5 s/h from **ON THREE.** *AppleWriter 2.0 is available through Sun Systems*

Remarketing, P.O. Box 4059, Logan, Utah 84321 for $50 plus $3.90 s/h. You may want to consider joining TAU users group for $25 a year. The group has a large public domain, upgrade and royalty ware library. To join TAU write TAU, c/o Lavona Rann, 1113 Wheaton Oaks Drive, Wheaton, IL 60187.

I don't know how often you read **ON THREE** *from cover to cover, but I believe that you may have missed a few key articles that would put your mind at ease about modems in the /// world. Please read ///* Telecommunications *in April's issue. You may note that an nice modem can be picked up for around $100. To add to that, communications packages are available for under $100. In fact,* **ON THREE***'s Communications Manager™ is available for $49.95 plus $2 s/h. So that's about $150. In this month's issue, you can find out more about the communications market by reading* Apple.Sauce. *For more games, author Ed Gooding has devised a way for you to enjoy some][games on your /// which will be published in the near future. Also, you may want to note that you can buy a 512K upgrade from* **ON THREE** *for as low as $289.*

In reference to your concern about your MicroModem, I talked to our programmer, Tim Harrington, about it. He wants to know how you are using the MicroModem IIe card in your ///. As far as Tim knows, one will not even fit into the slots. He says that there is an easy way to get characters from a modem using BASIC. Use the GET#1 command instead of the INPUT#. When you issue the GET#1 to the RS232 driver, it will sit there and wait for a key from the modem. If you don't like that, you can set up a no-wait mode and it will avoid this situation. The best way to do this is via an invokable. Apple supplied a few invokables on the BASIC system disk that will do all you need. There are quite a few modems that will work perfectly with the /// and there are about 10 terminal programs that will allow you to use the program.

You also mentioned on your wish list that you would like to see a new graphics pad, drivers and more BASIC programs. Tim says that they are on their way. As for BASIC programs, we will try to publish as many as possible in **ON THREE**.

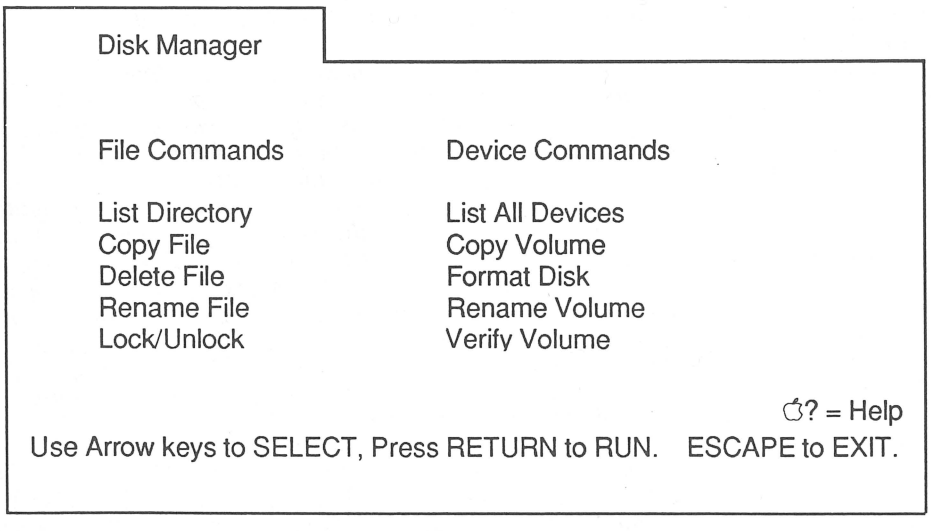
We do need to know what the consumer would like to see from time to time and we appreciate your ideas and plan to put most of them to use. Also, thank you for the nice comments about **ON THREE** *magazine. We appreciate your comments and concerns for the magazine and company. If anyone else has comments, we are open to suggestions.*

Commando Print

A few weeks ago, I purchased your 512K memory upgrade and it is working up to its standard beautifully. My question is regarding the fact that the print commands that you supplied are those for the Epson line of printers. I have an Apple ImageWriter I, and am having problems invoking various printer commands when I want to use them. Yes, I have upgraded my AppleWriter /// disk to the new version which was supplied with the 512K memory board. Particularly, I am interested in subscripts and superscripts. Although the others would be nice, too. Would you please send me a list of these commands for the Apple

ON THREE *presents . . .*

Disk Manager



This Desktop Manager module features the most frequently used applications of Apple's System Utilities and makes them available to you from within any program. Copy, delete, rename, lock/unlock and list all of the files on your disk without leaving the program you're using. Copy, format, rename and verify *volume* commands are available as well, so you will never again lose data because you exited a program to format a disk. Only $44.95 plus $3 s/h.

ImageWriter I.

Robert Kacer,
Downers Grove, Ill.

Thank you for the comments on the upgrade board. We will gladly send you the list of commands but also feel that it is necessary to share the information with others.

The file that holds the printer codes for direct Open Apple access is called "GLOS". This just holds the codes so that you can get to them by simply pressing **OPEN-APPLE-SHIFT** *and the corresponding letter. To release these codes you just press* **OPEN-APPLE** *and the corresponding letter. This is just a glossary. These can be constructed easily and the procedure is right in the Apple-Writer /// manual.*

To use the present glossary, all you have to do is to load it, as an ASCII file, into AppleWriter. To put the Image-Writer codes in there, all that you have to do is to replace the new letters or numbers in the proper places. An example would be:
b **V** [F **V** (The **V** being **CONTROL-V**)

All that you would have to do is to enter the sign for boldface end in place of the F(for ImageWriter the sign is a" (quotes)). There may be an ESCAPE character ([) in there. Ensure that it is there if it is required. The codes for the ImageWriter can be found on page 81 of your printer manual and for the Apple Dot Matrix printer on page 80 of your owner's manual.

You also can add to the glossary by inserting control codes for the things that your printer can do. Remember, for most codes, there is a release that must be used to return the printer to normal operation. After you have altered the glossary to your liking, save it back as either "GLOS" or a name of your own making. To call it you just have to press, **CONTROL-Q E,** *and type in the name and it will be invoked. You can read more about this glossary by printing out the file "GLOS.NOTES". This will give a much more detailed view of the glossary.*

Pascal system library

I have enclosed a list of instructions for making a Pascal system library to run Fortran 1.0 programs. I also want you to know that I am very pleased with Selector ///, Pascal update, 512K Memory Upgrade and Fortran 1.0. I appreciate you supporting my Apple ///.

Roger D. Weiss,
Caseyville, Ill.

Thank you for the fine comments about ON THREE. We are happy to support your /// and are glad that you enjoy our products. Thank you for sharing the Pascal system library instructions with other readers. Without further delay, here is your listing.

First format two disks with System Utilities.
Place Pascal0 into .d1 and press **CONTROL-RESET.**
At the prompt, place Pascal1 into .d1 and press **RETURN.**
Place Pascal 3 into .d2 and press **X.**
At prompt, "execute what file?," type .d2/library press **RETURN.**
At prompt, "output file->", type .d1/plib press **RETURN.**
Place formatted disk into .d1
At prompt "input file->", type .d2/system.library press **RETURN.**
At copy prompt line, type = press **RETURN.**
Now the Pascal system library is stored on .d1/plib
Place Pascal1 into .d1 and type **Q,** you are now back on Pascal command line.
Type **X,** .d2/ library.code is already on prompt line so press **RETURN.**
At prompt line "output file->", type .d1/flib press **RETURN.**
Place second formatted disk into .d1
At prompt "input file->", type .d2/system.library press **RETURN.**
At copy prompt line, type =.
After this library is copied, type **N** for new file.
Place Fortran.1.0 in .d2
At prompt "input file->", type .d2/system.library press **RETURN.**
At copy prompt line, type **13,** press **RETURN.**
At prompt "slot to copy into?" type **13,** press **RETURN.**
At prompt "slot 13 already linked reconfirm (Y/N)", type **Y.**
At copy prompt line, type **14,** press **RETURN.**
At prompt "slot to copy into" type **14,** press **RETURN.**
At copy prompt line, type **15,** press **RETURN.**
At prompt "slot to copy into", type **15** press **RETURN.**

You now have a system library in Pascal to execute a Fortran 1.0 program. When you want to execute a Fortran 1.0 program, first copy .d2/flib into Pascal3/system.library and then execute the Fortran.1.0 code. When you want to run Pascal, first copy .d2/plib into Pascal3/system.library.

De - Classifieds

For sale: VisiCalc Advanced Version, $50.00. Great Plains accounting software, General Ledger, Accounts Receivable, Accounts Payable, Payroll, $35.00 each. Will trade for Titan /// plus //e setup or 512K upgrade card. Call Duane at (712) 225-4045.

Wanted: Your De Classified ad. It could bring you cash for surplus equipment or programs. Send ad copy with check to:

ON THREE
De Classifieds
P.O. Box 3825
Ventura, CA 93006

Classified Rates: $1 per word, $25 minimum. Copy must arrive 60 days prior to cover date, e.g. August 1st for October issue.

Subscriber Discount: 50 cents per word, $12.50 minimum.

MEMO FROM ON THREE

SUBJECT: TECHNICAL SUPPORT
DATE: JULY 1, 1987

ON THREE, Inc. warrants all of its products and offers full technical support for a period of up to ninety days. This has always been our policy and we will continue to help our valued customers as much as we can. However, of late, the abuses to our limited technical staff have been overwhelming. Every day we receive dozens of calls from /// users with questions on products that were bought years ago, questions on software the caller frankly admits he/she has copied from a friend or other source "but doesn't have the manual and can you step me through the program?", calls concerning products that were purchased from companies and dealers that have gone out of business or refuse to support Apple /// products. We receive calls from Apple /// users who insist that because Apple, Inc. or their dealers won't assist them , we must help them with products that are not even ours,"because ON THREE is the only company still supporting the Apple ///." The majority of these calls come in over our toll free order line, which is toll free *only* because ON THREE is paying for the call! Our phone bills have been positively astronomical! All of this free technical support has put tremendous strain on our limited time and resources. ON THREE is not subsidized by Apple, Inc., as many people believe. If ON THREE is to survive financially, and stay in a position where we will be able to continue to develop new hardware, software and programs for the Apple ///, we must regretfully change our present policy of unlimited free technical support because quite frankly, we can no longer afford to do so. Because of these circumstances we are forced into the position of having to change our rules concerning free technical support on certain products: Effective immediately:

ON THREE will no longer offer unlimited, FREE help and assistance on products that:

1. Were not purchased from ON THREE.
2. Are not ON THREE products.
3. Were obtained from an unauthorized source.

If your call falls into any of the above categories, we will still try to assist you to the very best of the ability of our staff. However, at the start of your call, which must be made ***only*** to the 805-644-3514 line, we must ask you to give your credit card number and expiration date. You will be charged at the rate of $5 for the first three minutes and $1 per minute for each additional minute thereafter.

THANK YOU FOR YOUR UNDERSTANDING AND COOPERATION

*****

The following excerpts concerning the technical assistance offered by other companies is from an article titled, "EASY LISTENING ON THE SOFTWARE CIRCUIT", by editor George Gendron. This story appeared in the February 1985 issue of INC. magazine.

"Even the expense of making long distance phone calls to software publishers would be tolerable, except that getting through to a consoling voice often strains the bounds of patience.

Ashton-Tate: Called and got right through but was transferred to a recording that advised me to have software serial number ready and described A-T's commitment to the customer. Message prattled on for a good 80 seconds. No support was forthcoming, only Easy-Listening' FM. Was listenin' uneasily to "Try to Remember (the kind of September)" when a voice interrupted, "Our support technicians are still busy." Kept holdin'. Twelve minutes later, still no surcease; lots of hearts and flowers, though. Hung up. Elapsed time; still tickin'.

Context Management Systems: Picked the phone right up. No wonder there was such speed. The company no longer offers technical support. "Try the dealer you bought it from," I was told. Elapsed time: 8 seconds.

BTI SYSTEMS: The line was busy 10 straight times. At last a recorded voice answered: "All our support representatives are currently busy," Held the dead line for 2 minutes. Finally a *real* voice answered, "All of our support representatives are currently busy." Left name and phone number. Was called back in half an hour. Elapsed time: 40 minutes.

IBM: They answer questions like everybody else - except their support can cost $40 a query."

ON THREE News

An Important Personal Message From Bob Consorti, President of ON THREE

For the last four years **ON THREE** has been satisfying Apple /// users with virtually all of their /// needs. From being the only company to continue producing new products for the venerable old Apple ///, to giving everyone tens of thousands of dollars worth of ***FREE*** technical assistance, we've been here when you needed us.

Well friends, the state of the /// is not so well these days. People simply have not been purchasing enough of our products to keep us going as an Apple /// business. We've been diversifying over the last year and now have products for the //e and //GS, but...Our first love was the Apple /// and we would dearly love to continue creating new products and supporting it. The time is at hand when you will now decide the fate of your machine. We need **YOUR** support today.

ON THREE simply can't afford to continue doing Apple /// business unless you begin buying more of our products. If you placed one of the thousands of calls for technical assistance which we've answered - concerning problems with other company's products (or our own); we need you to stand up and say that you would like **ON THREE** to continue serving your Apple /// needs.

Please state your conviction by purchasing as many products as you can. If enough people order today, we will be here for you tomorrow - and the next day...

Realizing that we have to entice you, we're offering FREE gifts and unheard of sale prices on virtually all of our products. If you've been procrastinating, please look through this magazine and pick out something you've wanted but never got around to buying. Now is the time to buy! Prices have never been this low!

If you're one of the people who have 'black-market' copies of our software - look at our prices! Get the real thing today and learn how to get the most out of our products. You'll feel better about things - and we'll be here the next time you call asking a question only a few people in the world know how to answer.

Please pick up the phone and order today. It's so easy! We have toll-free 800 numbers so the call won't cost you a penny. All you have to do is order a few of the products you've been holding out for. We implore you not to wait any longer. So please, pick up the phone and dial in a nice big order today. If enough orders come in and we continue to receive your support, **ON THREE** will always be here for you.

Last but definitely not least, we want to thank each and every one of you who have given your support to us in the past. We look forward to providing the products and services you will need for the next four years.

Sincerely,

Bob Consorti
President
ON THREE, Inc.

P.S. Please check out our latest and greatest new products. My favorites are **The Communications Manager** (TCM) and the **Super Accessories Disk #1.** A very important new service is our Memory Board Insurance.

TCM is a first and *only* full feature communications package for your Apple /// that supports the powerful XMODEM and Binary II file transfer protocols. It allows **ERROR-FREE** transmission of files on the Apple /// and offers virtually all of the features of the other communication packages for the /// - and then some!

The **Super Accessories Disk #1** is a set of useful accessory add-ons for the Apple /// version of The Desktop Manager. It contains the most asked for accessories to date. Please check it out, you'll be glad you did.

ON THREE Magazine - The ONLY Monthly Apple /// Magazine!

Of all the products you may order today, one should be at the top of your list - **ON THREE Magazine!** At ***just*** **$40** for a full 12 issue subscription, it simply can't be beat. It's packed full of timely articles that you can't afford to miss.

The best way to get the most out of your Apple /// is through **ON THREE Magazine.** It's the ***only*** **monthly** magazine devoted to the Apple ///. Order today and get **ON THREE Magazine** delivered to your mailbox each and every month for an entire year.

Timely reviews and a variety of special sections for programming make **ON THREE** the ***only*** choice for your Apple /// magazine needs. Place your subscription order now and get any single back issue - **FREE!**

The Future Of ON THREE

If we can't generate enough revenue as an Apple /// company to keep going as we currently are, a number of changes will take place. First and foremost, we will still be here and you will still be able to order products from us. However, the level of service that you have grown accustomed to will change dramatically.

We will not be able to afford to keep support personnel around to answer your numerous questions. Our many product development efforts will **all** have to be cancelled. This means that **ON THREE** will not be able to bring you any more new software or hardware items and will not be able to answer questions as freely as we have been.

The one thing that will remain the same is **ON THREE Magazine.** The only monthly magazine devoted to the Apple /// will remain as long as /// people continue reading it. We will keep the quality of the magazine intact.

We have a number of exciting products planned for the /// but without your support we will not be able to complete them. The **Spelling Checker for /// E-Z Pieces, SOS** and **Pascal updates, Speed-Ups** with the 65C802 chip, **Hard Disk Tape Backup** and more are all in the works. If you want **ON THREE** to continue supporting your Apple ///, when all others have dropped it - please phone in your order today!

If you want to continue getting the most out of your trusty old Apple ///:

Please Support ON THREE Today!

Ordering Information

To order any **ON THREE** product, call our toll-free order line or simply send a check or money order to the following address:

ON THREE, Inc.
Attn: Order Department
4478 Market Street, Suites 701-702
Ventura, California 93003

The Toll-Free Order Lines

(800) 443-8877 or **(800) 331-1418** in California

If you would like to place an order, simply call the above numbers from 9AM to 5PM Pacific Standard Time. We accept Visa, MasterCard & American Express.

The above numbers are for orders only. The people answering them can't answer technical questions and they can't transfer you to someone who can. We've been getting an unbelievable number of calls of late on the order lines - but they haven't been for orders, they've been for technical support.

We simply can't afford to answer questions and pay for the call! It costs us money each and every time you call and place orders, or call for technical assistance on the 800 line.

If you have any questions about the Apple ///, you must call on the (805) 644-3514 number. If you have an order, please use the special Toll-Free numbers. If people keep abusing this service it will be discontinued and everyone will lose.

Call Three: Hot Line/Apple /// User Groups

If you want to meet other Apple /// owners and exchange ideas, contact one of the user groups listed below. If you recently formed a group, know of one not listed here or have updated information about a group already listed, please contact *ON THREE* and we will include your information in this section, no charge.

California
Sacramento Apple /// User Group
1433 Elsdon Circle
Carmichael, CA 95608
(916) 482-6660

Orange County Apple /// User Group
22501 Eloise Avenue
El Toro, CA 92630

LA-So. Bay Apple /// Users Group
P.O. Box 432
Redondo BVeach, CA 90277
(213) 316-7738

Apple /// Users of Northern CA
220 Redwood Highway #184
Mill Valley, CA 94941

International Apple Core Apple /// S.I.G.
908 George Street
Santa Clara, CA 95054
(408) 727-7652

Canada
Apples British Columbia Computer Society Apple /// S.I.G.
P.O. Box 80569, Burnaby, BC
Canada V5H 3X9
(416) 839-7779

The Astronic Club
1453 Highbush Trail
Pickering, Ontario
Canada L1V 1N6
(416) 839-7779

Colorado
Colorado Apple Three User Group
P.O. Box 3155, Englewood, CO 80112

Connecticut
Apple /// Society of So. Connecticut
34 Burr School Road
Westport, CT 06880
(203) 226-4198

Florida
Sarasota Apple /// User Group
c/o Computer Center
909 S. Tamiami Trail
Nokomis, FL 33555
(813) 484-0421

Georgia
Atlanta /// Society
385 Saddle Lake Drive
Roswell, GA 30076
(404) 992-3130

Illinois
TAU c/o Lavona Rann
1113 Wheaton Oaks Drive
Wheaton, IL 60187
(312) 665-6319

Kansas
Kansas City Apple /// Users Group
5533 Granada
Roeland Park, KS 66205
(913) 262-3355

Maine
So. Maine Apple Users Group
Casco St., Freeport, ME 04033
(207) 865-4761, ext. 2249

Maryland
Apple /// S.I.G. Chairman Washington Apple Pi
8227 Woodmont Ave. #201
Bethesda, MD 20814
(301) 654-8060

Minnesota
Minnesota Apple Corps User Group
P.O. Box 796
Hopkins, MN 55343

New Jersey
North Jersey Apple /// Users Group
c/o Roger T. Richardson
P.O. Box 251
Allamuchy, NJ 07820
(201) 852-7710

North Carolina
North Carolina Apple /// User Group
2609 North Duke St. #103
Durham, NC 27704

Ohio
Cincinnati Apple /// User Group
5242 Horizonvue Drive
Cincinnati, OH 45239
(513) 542-7146

Apple Dayton - Apple /// S.I.G.
P.O. Box 1666
Fairborn, OH 45324-7666
(513) 879-5895

Oregon
Oregon Apple /// Users Group
1001 S.W. 5th Ave. #2000
Portland, OR 97204
(503) 645-6789

Overseas
Apple /// Users Belgium/Netherlands
c/o H. Van der Straeten, Vestinglaan 49
2580 Sint-Katelijne-Waver
Belgium
(015) 205328

Overseas (cont.)
Apple User Group Europe e.V.
Box 11 01 69 D-4200
Oberhausen 11
West Germany
0049-6195-7 3917

Apple /// User Group Belgium/ Netherlands
c/o J. Woretshofer
Ganzerikweerd 22
NL-6229 TG Maastricht
The Netherlands
(043) 611704

British Apple Systems User Group (BASUG) Apple /// S.I.G.
P.O. Box 174
Watford Herts, England WD2 6NF
0727 73390/72728

Le Club Apple
43 Avenue de la Grande-Armee
75116 Paris, France

Apple /// User Group
c/o Canberra Accounting Services
P.O. Box 42
Duffy A.C.T. 2611
Australia

Texas
Apple Corps of Dallas
Apple /// S.I.G.
P.O. Box 5537
Richardson, TX 75080

River City Apple Corps /// S.I.G.
Box 13349
Austin, TX 78711
(512) 454-9962

Texas (cont.)
Houston Area Apple Users Group (Apple /// Division)
P.O. Box 610150
Houston, TX 77063
(713) 480-5690 or 974-5153

Virginia
Charlottsville Apple /// User Group
216 Turkey Ridge Road
Charlottsville, VA 22901
(804) 642-5655

Greater Tidewater Apple /// User Group
Route 2, Box 216
Hayes, VA 23072
(804) 642-5655 or 898-3500, ext. 2671

Apple THREE Group International
c/o H. Joseph Dobrowolski
P.O. Box 913
Langley AFB, VA 23665
(804) 865-7520

The *Call Three: Hot Line* is a service whereby Apple /// users with questions can call an area number for answers. The individuals answering your calls are fellow Apple /// users who volunteered to help those in need over some of the rough spots. They are not compensated for this service, so we owe them a resounding "three cheers" for their kindness and generosity.

If you are willing and able to aid others by answering questions, please write to *ON THREE* and provide the necessary information. If you have questions, feel free to call our consultants listed below. Please observe the calling hours shown and, before placing a call, double-check the time zone so you don't inadvertantly awaken someone! No other restrictions apply to this service.

For your reference, the accompanying table lists subjects and abbreviations used in the "Subjects" column of the consultant listing.

Subject	Code	Subject	Code
Accounting	AC	Graphics	GR
Agriculture	AG	Micro-Sci	MI
Assembly Lang.	AL	Modems	MD
Business Basic	BB	Modula-2	MU
Catalyst	CT	Pascal	PA
Cobol	CO	ProFile	PR
CP/M	CP	Quark	QU
Data Base	DB	SOS	SO
Education	ED	Spreadsheets	SS
Emulation	AE	Telecom	TC
Financial	FI	/// E-Z Pieces	EP
Fortran	FO	Word Proc.	WP
General	GE	On Three prod.	OT

Name	Area	Telephone	Days	Hours	Zone	Subjects
Coville Woodburn	NH	(603) 863-5590	M,Tu,Th,F	7-8pm	Eastern	BB,CT,GE,GR,MI,QU,WP
Ken Johnson	MA	(413) 536-7502	Su-Sa	6-9pm	Eastern	BB,PA,MD,WP,MI
Don Loosli	MI	(313) 626-3848	M-F	9am-5pm	Eastern	GE,WP,SS,DB
Harry T. Hanson	NJ	(201) 467-0712	M-F	6-9pm	Eastern	GE,PA,BB,CT
Edward N. Gooding, Sr.	VA	(804) 747-8751	Su-Sa	6-9pm	Eastern	CO,SS,PR,MD,CT
Jeff Fritz	WV	(606) 353-9493	M-Sa	8-11pm	Eastern	BB,DB,GE,MI,SS,TC,EP
Al Johnston	FL	(904) 739-1600	M-F	9am-6pm	Eastern	GE
Paul Sanchez	FL	(305) 266-5965	Su-Sa	10am-4pm	Eastern	SS,PR,CT
R.B. Thompson	NC	(919) 787-1703	Su-Sa	10am-10pm	Eastern	BB,DB,GE,SS,WP
J. Donald Glenn	NE	(402) 291-9177	Su-Th	7-10pm	Central	GE
Scott Weddel	NE	(402) 572-7543	Su-Sa	4-10pm	Central	GE,TC
Jim Ferencak	IL	(312) 599-7505	M-F	10am-5pm	Central	GE,EP,DB
Paul Thomas	MS	(601) 494-8736	Su-Sa	6-10pm	Central	GE,AC,BB,CP,DB,FI,MI,MD,PA,PR, SO,SS,TC,EP,WP
Earl T. Brelje	MN	(612) 455-6405	M-F	4-9pm	Central	CT,DB,WP,GE, Quick File, Omnis 3
Ron Maupin	TX	(512) 280-0144	Su-Sa	8am-10pm	Central	AL,CO,CT,EP,MD,PA,QU,SS,TC,WP
Rodney Hendricks	TX	(214) 581-0524	Su-Sa	6-9pm	Central	DB,EP,GE,MD,QU,SO,SS,TC,WP
Terri Wiles	CO	(303) 850-7472	Su-Sa	10am-6pm	Mountain	PA
William Prince	OR	(503) 254-6465	M-F	9am-4pm	Pacific	GR,TC, Corvus
Karl La Rue	WA	(509) 582-6459	F-Su	6-10pm	Pacific	MD,GE,EP,WP,TC,SS,CP
Pat Holwagner	CA	(415) 433-2323	M-F	10am-6pm	Pacific	GE,SS,WP,CT,DB,SU,AE,EP
Vincent F. Latona	CA	(818) 703-0330	M-F	9am-5pm	Pacific	GE,WP,BB,SS,AE
Dennis R. Cohen	CA	(818) 956-8559	Su	10am-10pm	Pacific	GE,PA,MU,WP,DB,SO
			M-F	7-9pm		
			Sa	12n-6pm		
Kelly C. McGrew	WA	(206) 943-8533	Su-M,Th-Sa	7-9pm	Pacific	DB,GR,SS,PR,MD,CT
Larry E. Kalland	AK	(907) 272-4968	Su-Sa	12n-11pm	Alaska	AC, CT, GE, SS, EP, WP
H. Van der Straeten	Belgium	(015) 205328	Su-Sa	7-10pm	Europe	BB,CT,DB,GE,PA,PR,SS
Arnaud Trache	France	21 03 04 21	Sa-Su	10am-7pm	Europe	AC,BB,DB,AE,FI,GR,MD,PR,SS,TC,EP ,OT
J. Woretshofer	Netherlands	043-611704	Su-Sa	9-12am	Europe	CT,FO,GE,PA,QU,SO,WP,AE,EP
Salvador Garcia	Spain	(91) 234-5068	Su-Sa	7-10pm	Europe	BB, GE.PA,MD,CT

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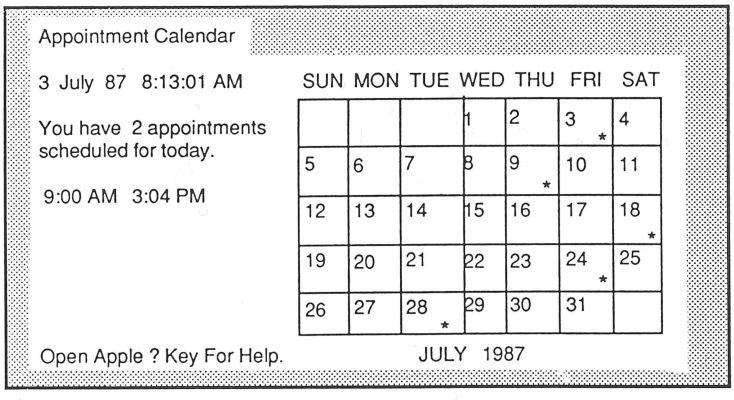
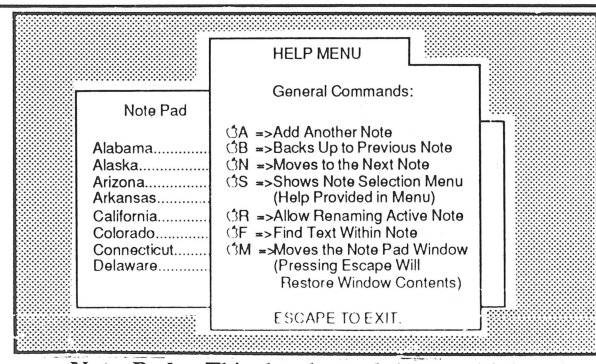
From within any program, two keypresses override and freeze your current application and display a window containing the Desktop Manager's main menu. Now you have the power of all of the Desktop Manager's options at your command. Simply select one of the following standard Desktop Manager features:

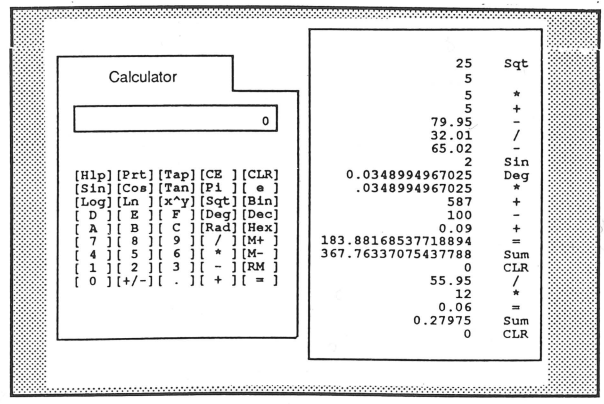
Appointment Calendar - Set multiple appointments daily through December 31, 1999. As your appointment is due, a reminder appears on your screen regardless of what application you're using. The daily and weekly appointments are shown at a glance and, as with all Desktop Manager options, help screens are only two keystrokes away.



Calculator - A powerful electronic workhorse, the Calculator has full 16-digit accuracy and advanced functions such as SIN, COS, TAN, LOG's, x to a power, square root pi, memory and base conversions in addition to the basic add, subtract, multiply and divide functions. Also, you can invoke a simulated scrolling paper tape for printing later or pasting into another document.



Note Pad - This handy tool has multiple pages per note, word wrap, automatic repagination, pick up and paste, and many other features usually found only in a word processing program. On-line help screens (a standard Desktop Manager feature) make using the Note Pad effortless as well as convenient.



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