# *AW3 Expander*

*User's Manual*

Applied Engineering®
A Division of AE Researc Corporation

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# INTRODUCTION

## *The Disk*

**WITH** your Applied Engineering memory expansion boards, we include the AW 3 Expander disk. Most of the programs on the disk will not work without an Applied Engineering memory card installed (including PC Transporter and RamKeeper with any IIGS memory card attached).

**ON** the disk you'll find the title program, AW 3 Expander. This is our enhancement program for AppleWorks 2.0, 2.1, and 3.0. The AW 3 Expander program adds to the features of AppleWorks allowing you to have more records in the data base and more lines in the word processor, by giving you the ability to time and date stamp your AppleWorks files, and by providing you an easy way to save large files onto several disks. The program is described in full detail in Chapter One. Apple ][ Plus users will want to turn to Chapter Two for instructions on modifying AppleWorks.

**READ** over the appendices of this instruction manual for a description of the other programs on the disk. We've included Apple's Filer--a copy program, Applied Engineering's Autocopy2--a program designed specifically for copying files from floppy disks to RAM disks, and Bird's Better 'Bye--an easy to use launcher.

**KEEP** the disk handy so that when you add memory to your card(s), you can run the included memory tests to verify that the chips were properly installed on your RamFactor, PC Transporter, Ram Express, RamWorks, GS-RAM, and/or Z-RAM. Each test shows a hi-res picture of the card being tested. Any chips that are bad or missing will be marked making it easy to locate and replace defective or improperly installed chips.

**SUPPORT** for our products is available from our Technical Support staff who are dedicated to answering specific technical questions about Applied Engineering products. However, please read the manual first; it's very likely that it will have the answer to your question. Any suggestions about how we can improve our hardware, software, or documentation are welcome; we'd like to hear from you. Send any comments or suggestions to:

**Applied Engineering**
**P.O. Box 5100**
**Carrollton, IX 75011**

## CHAPTER ONE

# *A W 3 Expander Instructions*

### About AW 3 Expander

AW 3 Expander is an accessory program designed to complement Applied Engineering memory expansion products (including other companies' IIGs memory expansion cards connected to RamKeeper as well as the PC Transporter). It modifies the **AppleWorks 2.0, 2.1, and 3.0** programs to recognize and use the additional memory provided by these products.

The AW 3 Expander program is designed to enhance only AppleWorks 2.0, 2.1 and 3.0 when used on a IIGs, //e, or //c and is very different from the Super Desktop Expander program. The Super Desktop Expander will enhance only AppleWorks versions 1.0 through 1.3. The AW 3 Expander will also patch AppleWorks so that it will run on an Apple ][ Plus. (II Plus users refer to the section *A W 3 Expander for the If Plus* for instructions.)

### AppleWorks 2.0 and 2.1 Enhancements

- ~ Increased Desktop Size (for RamWorks & Z-RAM)
- ~ Increased records in the Data Base -- up to 22,500 (versus 6,350)
- ~ Increased lines in the Word Processor -- up to 22,500 (versus 7,250)
- ~ Word Processor and Data Base Clipboard expanded to 2,042 lines (versus 250)
- ~ Multiple disk file-saving capability
- ~ Printer Buffer (for RamWorks and Z-RAM products)
- ~ Print-file cache
- ~ Buffer size option (for IIGS)
- ~ Reserve RamFactor size for use as a RAMdisk (for RamFactor, PC Transporter, and Ram Express--see note for RamWorks/Z-RAM in the *About the New Features* section)
- ~ On-screen time display option (with ProDOS clock)
- ~ Data Base time-stamp capability option (with ProDOS clock)
- ~ Expander options menu (accessible whenever AppleWorks is booted)

## AppleWorks 3.0 Enhancements

Increased records in the Data Base -- up to 23,290 (see note)

Increased lines in the Word Processor -- up to 23,290 (see note)

¥ *Timeout Note: If* you're Using TimeOut enhancements the lines and records will not be increased. TimeOut uses the extra memory for its own purposes

Multiple disk file-saving capability'

Printer Buffer (for Ramworks and Z-RAM products)

Print-file cache

Buffer size option (for JIGS)

Reserve RamFactor size for use as a RAMdisk (for RamFactor, PC Transporter and Ram Express--see note for RamWorks/Z-RAM in the *About the New Features* section)

On-screen time display option (with ProDOS clock)

Expander Options menu (accessible whenever AppleWorks is booted)

## Before you even think of modifying AppleWorks...

If you are familiar with AppleWorks, you will probably be tempted to use AW 3 Expander without reading these instructions. Resist the temptation. Or at least read this page.

- **AW 3 Expander** requires that you have an Applied Engineering memory card installed in your computer.

- **AW 3 Expander** will enlarge the desktop and increase the maximum number of lines and records when used on a //e or IIGS with **AppleWorks 2.0, 2.1 and 3.0** only. It will add only the ][ Plus enhancements when used on versions 1.2 or 1.3. (See ][ Plus section for list of ][ Plus patch features.) If you are unsure what version of AppleWorks you have, refer to the illustration, *AppleWorks Version Number* (page 5).

- If you own a RamWorks or Z-RAM and want to enlarge the desktop and increase the maximum number of records and lines of version 1.0 through 1.3, you will need the **Super Desktop Expander** program available from Applied Engineering Sales.
- If you have a RamFactor installed in your //e or ][ Plus and want to enlarge the desktop and increase the maximum number of records and lines of version 1.3, you will need the **RamFactor Expand** program available from Applied Engineering Sales.
- These instructions assume that you already know how to use AppleWorks. The AW 3 Expander program uses the same screen displays and keyboard input routines ('user interface") as the AppleWorks program. If you need a quick review, read *Throughout Apple Works* in your *Using Apple Works* manual.
- There is an AppleWorks Word Processor file on the AW 3 Expander disk entitled "**READ ME.**" Please do so. This document will contain information about any recent changes to the software or updates to the documentation.

- If you plan to use the Printer Buffer option, you must have a printer interface which supports Apple's Pascal 1.1 protocol for status-checking. (Most newer interfaces do support this standard.) For more information, please refer to *Printer Buffer Option* in the section entitled *About the New Features.*

- Apply the AW 3 Expander modification only to **unmodified BACKUP copies** of your AppleWorks Startup and Program disks. Use only Filer or System Utilities to backup AppleWorks Modifications required by other programs should be done after executing the AW 3 Expander enhancements.

¥ Important Note: AppleWorks 3.0/Timeout users must install Ultra Macros and turn off the clock (from the TO menu) **before** expanding AppleWorks 3.0

## Enhancing AppleWorks 2.0, 2.1, and 3.0

AppleWorks expansion is a two part process. First, you will use the AW 3 Expander utility to modify some of the program files on the AppleWorks startup and program disks. Then, you will boot the modified AppleWorks disk and add or change the limits on the enhanced features by accessing a special options menu.

### Part 1 - Modifying the AppleWorks disks

1. **First, make copies of your original AppleWorks disks and the AW 3 Expander disk.**

   Use FastCopy (provided on the AppleWorks 3.0 disk), Filer (provided on the AW 3 Expander disk) or the System Utilities for this purpose. (See Appendix A for Filer instructions.)

2. **Boot the copy of the AW 3 Expander disk** in your startup drive. If you're using a program selector (like the Finder), run the program AE.AW.System."

3. **Select the option, "Execute AppleWorks Enhancement." from the Expander Menu.**
   The Applied Engineering AW 3 Expander copyright screen will then appear. Read each of the screens, pressing the space bar to continue, until you reach the "Modify Startup" screen.

4. **Remove the AW 3 Expander disk (if needed) and insert a copy of the AppleWorks STARTUP disk In drive one** as prompted.

   Be sure the WRITE PROTECT tab has been removed from the disk. As prompted at the bottom of the display screen, press the space bar to continue or the Esc key to go back to the main menu.

   The AW 3 Expander program expects to find the AppleWorks Startup file, "APLWORKS. SYSTEM," on the disk in the drive from which you booted the Expander. If, at this point, the program displays the following message:

**Unable to find file. Type prefix of AppleWorks to modify**

/

type, "AppleWorks" after the slash or enter the complete ProDOS prefix of the AppleWorks STARTUP disk. If you have copied the AppleWorks program to be modified into a ProDOS subdirectory, enter the complete ProDOS pathname of the subdirectory containing the AppleWorks files. Be sure to include slashes (/) for any subdirectories An example ProDOS prefix of an AppleWorks subdirectory on a hard disk (with a volume directory name of /HARD) might be: **/HARD/APPLEWORKS**

5. **Press "Y"**

   When the program finds the AppleWorks disk, it will automatically determine which version it is and display a list of the modifications it will make. Pressing "Y" in response to the question, "Do you wish to continue?" will begin the modifications. Pressing "N" will return you to the main menu.

6. **The message, "Working" will appear** at the bottom of the screen followed

+ *3.0 Note:* The message "Copying file SEG.AE will follow the "Working" message. The SEG.AE file is where the patches reside.

7. **(2.0 and 2.1 5.25" disks only) Insert the PROGRAM disk and press the space bar.**
   After the STARTUP disk has been successfully modified, you will be prompted to remove it from the disk drive and insert a copy (write enabled) of the AppleWorks PROGRAM disk--unless all of the AppleWorks startup and program files are contained in the same directory (i.e. Disk 3.5 or hard disk). If the program and startup files are on the same directory, no disk swapping is necessary. The volume directory name of this disk must be the same as the STARTUP disk. Press the space bar to continue.

8. **Quit the Expander**
   When the modification to the AppleWorks disk(s) has been completed, the message `Modification Successfully completed` appears on the screen. Press any key and the program will beep the computer's speaker and exit to the ProDOS Quit code. The modified AppleWorks disks can now be booted in the normal manner.

**9. Make other modifications.**
Any modifications required by other AppleWorks accessory programs should be done at this time. (You may wish to make backup copies of the enhanced AppleWorks disks prior to any other modifications.)

**10. Copy to hard disk.**
If you will be using the modified AppleWorks from a hard disk drive, copy the modified AppleWorks files to the hard disk according to the instructions provided with your hard disk file management program.

**11. Load AppleWorks onto your RAMdisk.**
*Note:* If you plan to boot from your RamFactor, you'll need to FORMAT it first.

If you want to load AppleWorks onto your RamFactor, PC Transporter or Ram Express, here s how:

- Select Filer from the AW 3 Expander menu.
- Select File Commands ("F")
- Select Copy Files ("C")
- Type in the AppleWorks disk pathname followed by an equal sign (ex: /AppleWorks/=). The equal sign is a wildcard command meaning, "copy all files."
- Type in the Pathname for your RamFactor followed by an equal sign (ex: /Ram7/=).
- Press the "Return" key. A list of the files being copied will appear on the screen.
- If you're copying from a 5.25 disk, make sure you have copied both the Startup and Program sides of the disk.
- Copy is complete. The AppleWorks program can now be run at super-fast speed from your RAMdisk.

Now you'll need to access the enhanced AppleWorks' Getting Started menu and configure the program disk's parameter file with the desired expander options.

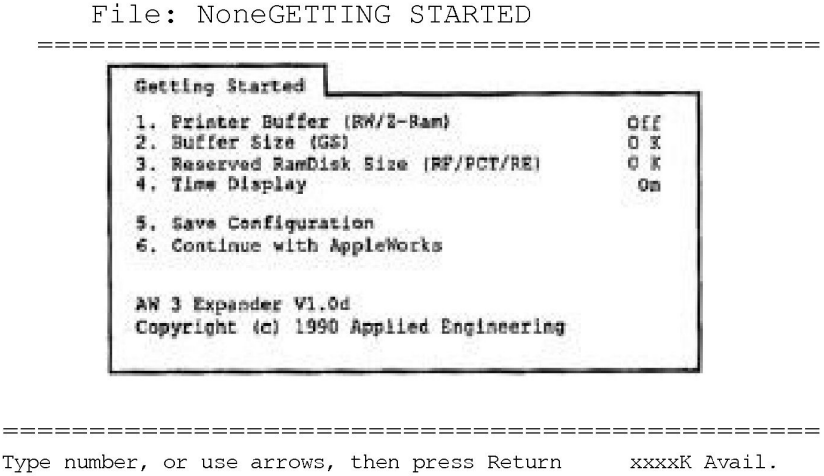
## Part 2 - Access the Getting Started Menu

### 3.0

To access the Getting Started Menu in enhanced AppleWorks 3.0, hold down the Option (⌘) key while booting the AppleWorks startup disk.

*Note:* You don't need to access the Getting Started menu each time you boot AppleWorks. Use the Getting Started menu to modify the enhanced AppleWorks options only.

The current enhancement options configuration will be read from the parameter file (SEG.AE) on the AppleWorks program disk and displayed in the Getting Started menu. The configuration shown below contains the default settings. These default settings remain in effect until you change them and save the new configuration back to the AppleWorks program disk.

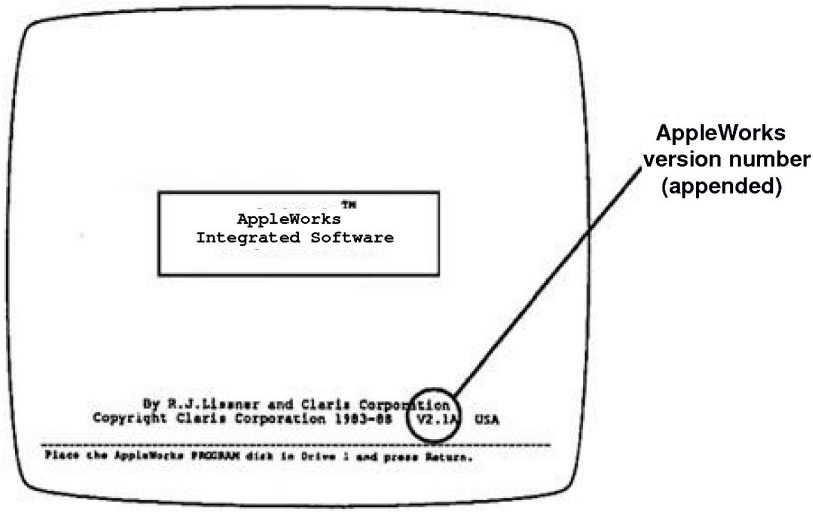



**The 3.0 Getting Started Menu (IIGS)**

## 2.0/2.1

1. **Boot the AppleWorks startup disk** just like you normally would.

   (Notice that the Expander has appended an "A" (or a "**+**") to the AppleWorks version number near the lower right corner of the startup screen



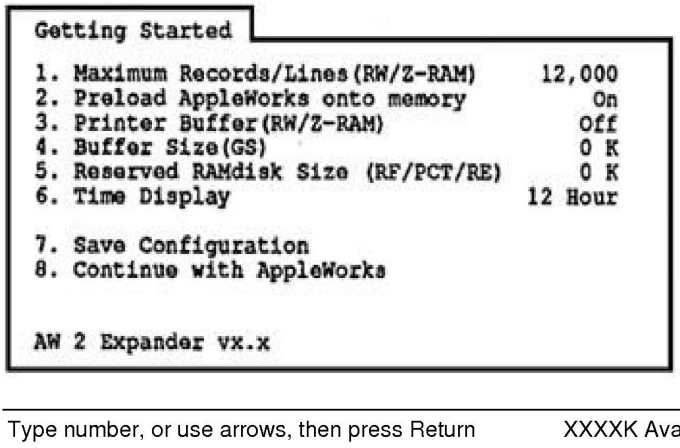

**AppleWorks Version Number (2.0 and 2.1)**

2. **Remove the startup disk and insert the program disk** when the startup disk has finished loading, **DO NOT press Return. Press the ESCape key instead.**

   If you boot AppleWorks from a Disk 3.5 or a hard disk, press the Esc key when you are prompted with: "Press Space Bar to continue."

- *Note:* You don't need to access the Getting Started menu each time you boot AppleWorks. Use the Getting Started menu to modify the enhanced AppleWorks options only.

  The current enhancement options configuration will be read from the parameter file (SEG.PR) on the AppleWorks program disk and displayed in the Getting Started menu. The configuration shown below contains the default settings. These default settings remain in effect until you change them and save the new configuration back to the AppleWorks program disk.




**The 2.0/2.1 Getting Started Menu**

## Part 3 - Set the AppleWorks Enhancement Options

1. **Use the Up Arrow and Down Arrow keys to highlight the option you want. Use the Return key to select a highlighted option**

   For more information on the Options, refer to the section entitled *About the New Features* in this chapter.

2. **Save the new configuration** back to the AppleWorks program disk by selecting the menu Option `Save Configuration` after you have made the desired changes.

3. **Choose the option Continue with AppleWorks** to continue booting the AppleWorks program.

   If you did not save your new configuration the new one will be in effect only until you quit the AppleWorks program. The next time you boot AppleWorks, it will use the previous (saved) configuration.

# CHAPTER TWO

## About the New Features

This chapter describes the new features of the enhanced AppleWorks and the instructions for using them. Please read this section very thoroughly. Those features that apply to v3.0 are detailed first followed by the 2.0/2.1 features.

## 3.0 Features

### More Word Processor Lines and Data Base Records

- *Note:* If you're using TimeOut enhancements the lines and records will not be increased. TimeOut uses the extra memory for its own purposes.

With sufficient memory, the maximum number of Word Processor lines available with the unenhanced AppleWorks 3.0 is limited to 16,250; the maximum number of Data Base records is 16,250. The enhanced version expands the maximum number to just over 23,900 for both.

When a GS-RAM, GS-RAM Plus, RamKeeper (with any compatible GS memory card) RamFactor, PC Transporter or Ram Express is used, enhanced AppleWorks 3.0 automatically set the number of lines and records to the maximum (23,900) and any changes to the Maximum Records/Lines option will be ignored. When a RamWorks or Z-RAM card is used, the Getting Started options menu allows a choice of maximum lines and records. (The initial default is 12,000.) In order to achieve the extraordinary increase in the number of lines and records, some desktop space has to be sacrificed. As you set the maximum lines and records, remember that each additional 1000 lines/records requires about 2K of memory (desktop) space.

### Multiple-Disk Save

Data storage problems arise when the size of a file on the desktop exceeds the amount of storage space on the data disk. A 5.25" floppy disk can store only 135K of AppleWorks data. A 3.5" disk can hold 800K. Using the modified AppleWorks, desktop files larger than the available disk space will be segmented, or "split", and saved in sections to two or more disks. The following paragraphs explain how to use this feature to save and load segmented desktop files.

This seems to be a good time to remind you of Murphy's Law:

**Whatever can go wrong will go wrong...**

Back up your desktop files! A power failure will wipe Out anything currently on the desktop! It's always a good idea to have backup copies of your working data disks, especially if you have large amounts of data stored on them.

## Saving Desktop Files to Disk

When saving a desktop file which is larger than the data disk space available, the enhanced AppleWorks will prompt the user with the following message:

**Segmented Desktop** .....
**Please, insert NEXT disk with SAME VOLUME NAME**

- Note: If a previous version of the file already exists on the disk, AppleWorks 2.0, 2.1 and 3.0 will first ask you if you wish to delete the old file. 1.0 through 1.3 will automatically delete the old file before the new file is saved.

Remove the data disk from the current disk drive and replace it with the next data disk. All segments of a given segmented desktop file MUST be saved on data disks having the same volume (disk) name as the primary (first) data disk. There must be at least one block of free space on the first data disk! If there isn't, the "unable to begin" error message will be displayed and you will have to delete a file on the disk or create a new primary data disk. On subsequent data disks, each appended file segment (sequential) will be automatically deleted before saving a new segment.

**If you discover that you don't have enough formatted blank disks** with the same volume name, don t panic! Just use the AppleWorks Disk Formatter utility under the "Other Activities" menu. First, press the Esc key to stop saving the desktop file and to return to the AW Main Menu. Do not turn the computer off. Doing so will erase the desktop file from memory.

## Adding multiple-disk files to the Desktop

When adding multiple-disk or segmented files to the desktop, the file MUST be loaded from the data disks in the same sequence as it was saved. AppleWorks will prompt the user to insert the NEXT data disk until the file is completely loaded.

If you list the files on disks that contain segmented files you will notice that the first segment has the filename that you gave it. The next segment (on the NEXT disk) will have a ".2" appended to the end of your filename. The next disk in the sequence would have a ".3" appended to the filename and so on. This is the way AppleWorks keeps track of the segmented desktop file sequence. You will probably want to label your data disks in such a way that you too can keep track of the proper sequence.

## Printer Buffer Option (RamWorks and Z-RAM)

This feature is available only when the AppleWorks desktop is expanded using RamWorks or Z-RAM memory. It is not available when a RamFactor, PC Transporter, or Ram Express is used. For GS-RAM and RamKeeper users, the Apple IIGS has a built-in Print Buffer that you can activate from the Apple IIGs Control Panel menu. (The next section describes Buffer Size Option for the Apple IIGS.)

If your RamWorks or Z-RAM has 256K or more memory, the Printer Buffer option will automatically enable you to continue working with files on the AppleWorks desktop even while your printer is printing. With sufficient memory, the buffer will support two printers printing at the same time, each printing multiple files. The relative size of the print buffer is determined by the amount of available Z-RAM or RamWorks memory. It does not affect the size of the desktop.

> *Note:* This feature will not work with all printer interfaces. It was designed to work with all standard interfaces supporting the Pascal 1.1 protocol for status checking. If you cannot get this option to work, your interface does not support this official protocol. The Apple *//c* serial ports support this standard, but some serial-to-parallel printer-interface converters do not. Contact the manufacturer of your printer card or converter for details on upgrades.

As the desktop file to be printed is being loaded to the buffer, the message "Filling buffer..." will appear on the screen and the printer will begin printing. If the printer is printing an exceptionally large file and the computer seems to be locked in the "Filling buffer. . ." mode, it is probably caused by insufficient buffer space. The AppleWorks desktop will return when the buffer can hold the remainder of the print file.

Press the Esc key while the print buffer is filling to make AppleWorks stop sending the remainder of the print file to the buffer. Sending an (Ö)-Control-C from the keyboard while the printer is printing will reinitialize (clear) the AppleWorks internal Print Buffer. If your printer or printer interface has a print buffer of its own, the printer may continue to print the remaining contents of its buffer even after the AppleWorks buffer has been cleared.

### Buffer Size Option (GS Only)

The Buffer-Size option of the Getting Started menu only affects the size of the Apple IIGS' internal print buffer. (Remember to activate the computer's print buffer by using the Apple IIGS control panel.) Since the print buffer on the Apple IIGS is handled differently from the RamWorks/Z-RAM print buffer, this feature has no effect when used on an Apple //e or //c.

The Buffer Size option of the enhanced AppleWorks Getting Started menu lets you allocate the amount of Apple IIGS memory space (up to 64K) to be used for the print buffer. With the Apple IIGS Print Buffer ON and the Getting Started Buffer-Size option set to 0 K, the actual buffer size will be determined by the amount of memory (2K or less) that the Apple IIGS memory manager can allocate. Please refer to your Apple IIGs *Owner's Guide* for more information about the internal Print Buffer.

#### Reserved RamFactor Size (RamFactor, PC Transporter, and Ram Express)

This option allows RamFactor, PC Transporter, and Ram Express users to partition the desired amount of RamFactor Memory for use as a RAMdisk. Otherwise, AppleWorks will use all available memory to expand the desktop. Since the memory on RamWorks and Z-RAM is handled differently from the memory on RamFactor, PC Transporter, and Ram Express, this setting has no effect when used with RamWorks or Z-RAM.

### ProDrive Recognition for RamWorks and Z-Ram

The Bank Lockout and partitioning features described in the RamWorks and Z-Ram manuals are not needed with enhanced 3.0. AppleWorks will look for ProDrive v2.0 and, if ProDrive is installed, will use the memory still available without writing over the ProDrive. (Refer to the RamWorks and Z-Ram manuals for ProDrive instructions.)

# 2.0 and 2.1 Features

## Desktop Expansion

Unenhanced AppleWorks 2.0 and 2.1 will automatically increase its desktop using the memory from any one of the following cards:

RamFactor Card (Apple IIe only)

PC Transporter (IIe only with modified ProDOS)

Ram Express

GS-RAM or GS-RAM Plus (Apple IIGS only)

RamKeeper with any compatible GS memory card attached

The AW 3 Expander software allows AppleWorks to use RamWorks or Z-RAM memory to expand the desktop, enabling you to work with larger desktop files. It does not increase the maximum number of files (12) you can have on the desktop at one time. The desktop expansion feature requires a minimum of 192K of system memory (128K of auxiliary memory).

## More Word Processor Lines and Data Base Records

With sufficient memory, the maximum number of Word Processor lines available with the unenhanced AppleWorks 2.0 is limited to 7,250; the maximum number of Data Base records is 6,350. The enhanced version expands the maximum number to just over 22,500 for both.

When a GS-RAM, GS-RAM Plus, RamKeeper (with any compatible GS memory card) RamFactor, PC Transporter or Ram Express is used, enhanced AppleWorks 2.0 and 2.1 automatically set the number of lines and records to the maximum (22,500) and any changes to the Maximum Records/Lines option will be ignored. When a RamWorks or Z-RAM card is used, the Getting Started options menu allows a choice of maximum lines and records. (The initial default is 12,000.)

In order to achieve the extraordinary increase in the number of lines and records, some desktop space has to be sacrificed. As you set the maximum lines and records, remember that each additional 1000 lines/records requires about 2K of memory (desktop) space.

## Clipboard Expansion

The standard AppleWorks clipboard in versions 2.0 and 2.1 is limited to only 250 lines of information. The enhanced AppleWorks clipboard expansion increases the clipboard size for the Word Processor and Data Base functions to 2,042 lines. Only clipboard activities within and originating from the Spreadsheet function remain limited to 250 lines.

## AppleWorks Auto-Load feature

Note: The Auto-Load and Preload features described below require at least 190K of desktop memory.

AppleWorks 2.0 has a built-in "Preload" feature which will automatically find your memory expansion card and load the AppleWorks special functions into memory. This greatly increases the speed of AppleWorks; **it** does not have to access the external drive for the PROGRAM disk information.

AppleWorks 1.3 and earlier did not have the Preload feature but the AW 3 Expander adds a feature to 1.3, referred to as"Auto-Load," that performs much like the Preload feature Apple has added to versions 2.0 and 2.1.

AppleWorks 1.3 was designed for use with only 64K of additional memory, so not all of the AppleWorks program functions are loaded into memory during program startup; some functions, like displaying help screens, adding files, or using the clipboard, are left on the disk and retrieved only when they are needed. RamFactor, PC Transporter (with modified ProDOS), and Ram Express allow you to "auto-load" these functions into memory which minimizes the time consuming disk accesses and allows you to move between desktop files and AppleWorks' functions very quickly.

The Auto-Load feature loads the rest of the AppleWorks 1.3 program into memory. This extends the AppleWorks startup time by about a minute. The PROGRAM disk startup screen will display a counter indicating the number of functions remaining to be loaded. (During the countdown it may appear that the counter has skipped a function. This is because some functions are relatively small and loaded faster than indicated by the counter.)

Pressing the Esc key during this count-down will stop the loading of special functions and immediately display the AppleWorks Main Menu. AppleWorks will access the functions in memory that were loaded before the Esc key was pressed and access the PROGRAM disk for those functions which had not been loaded.

The AppleWorks special functions are loaded into memory, but they don't decrease the size of the available desktop. Magic? Nope! The functions are originally "hidden" in an unused portion of the desktop memory and as the files on the desktop grow larger, the special functions are individually "bumped" from memory to make room. If AppleWorks can't find a special function in memory it will go back to the PROGRAM disk.

This brings up an interesting point about the convenience of using the Auto-Load and Preload features to replace the AppleWorks PROGRAM disk in drive one of a single disk system. If you have all of the program functions Auto-Loaded (or Preloaded) in memory, you can first specify drive one as the standard location of your data disk and then replace your PROGRAM disk with your data disk. Keep your PROGRAM disk handy, though. You'll need to insert it whenever AppleWorks tries to access something that has been bumped from memory. Please refer to your AppleWorks Reference Manual for more details on the selection of a standard location for your data disk.

> *Note:* If you copy all AppleWorks STARTUP and PROGRAM disk files to the RamFactor, PC Transporter, or Ram Express and execute the program from the emulated ~disk, the AutoLoad/Preload feature is not required--pres Esc when you see the message `Preloading AppleWorks program onto the memory expansion card.`

`The` Preload feature for version 2.0 as well as the Auto-Load feature for version 1.3 can be turned on or off with the Getting Started menu option, `Preload AppleWorks into Memory.` 2.0 users can use the option to turn off the Auto-Load feature instead of pressing Esc while AppleWorks is loading. Refer to the AppleWorks 2.0 user's manual for more information about the built-in Preload feature.

## Multiple-Disk Save

Data storage problems arise when the size of a file on the desktop exceeds the amount of storage space on the data disk. **A** 5.25" floppy disk can store only 135K of AppleWorks data. A 3.5" disk can hold 800K. Using the modified AppleWorks, desktop files larger than the available disk space will be segmented, or "split', and saved in sections to two or more disks. The following paragraphs explain how to use this feature to save and load segmented desktop files.

This seems to be a good time to remind you of Murphy's Law:

**Whatever can go wrong will go wrong...**

Back up your desktop files! A power failure will wipe out anything currently on the desktop! It's always a good idea to have backup copies of your working data disks, especially if you have large amounts of data stored on them.

## Saving Desktop Files to Disk

When saving a desktop file which is larger than the data disk space available, the enhanced AppleWorks will prompt the user with the following message:

**Segmented Desktop** .....
**Please insert NEXT disk with SAME VOLUME NAME**

- *Note:* If a previous version of the file already exists on the disk, AppleWorks 2.0 and 2.1 will first ask you if you wish to delete the old file. 1.0 through 1.3 will automatically delete the old file before the new file is saved.

Remove the data disk from the current disk drive and replace it with the next data disk. All segments of a given segmented desktop file MUST be saved on data disks having the same volume (disk) name as the primary (first) data disk. There must be at least one block of free space on the first data disk! If there isn't, the "unable to begin" error message will be displayed and you will have to delete a file on the disk or create a new primary data disk. On subsequent data disks, each appended file segment (sequential) will be automatically deleted before saving a new segment.

**If you discover that you don't have enough formatted blank disks** with the same volume name, don't panic! Just use the AppleWorks Disk Formatter utility under the "Other Activities" menu. First, press the Esc key to stop saving the desktop file and to return to the AW Main Menu. Do not turn the computer *off*. Doing so will erase the desktop file from memory.

### Adding multiple-disk files to the Desktop

When adding multiple-disk or segmented files to the desktop, the file MUST be loaded from the data disks in the same sequence as it was saved. AppleWorks will prompt the user to insert the NEXT data disk until the file is completely loaded.

If you list the files on disks that contain segmented files you will notice that the first segment has the filename that you gave it. The next segment (on the NEXT disk) will have a ".2" appended to the end of your filename. The next disk in the sequence would have a ".3" appended to the filename and so on. This is the way AppleWorks keeps track of the segmented desktop file sequence. You will probably want to label your data disks in such a way that you too can keep track of the proper sequence.

### Printer Buffer Option (RamWorks and Z-RAM)

This feature is available only when the AppleWorks desktop is expanded using RamWorks or Z-RAM memory. It is not available when a RamFactor, PC Transporter, or Ram Express is used. For GS-RAM and RamKeeper users, the Apple IIGS has a built-in Print Buffer that you can activate from the Apple IIGS Control Panel menu. (The next section describes Buffer Size Option for the Apple IIGs.)

If your RamWorks or Z-RAM has 256K or more memory, the Printer Buffer option will automatically enable you to continue working with files on the AppleWorks desktop even while your printer is printing. With sufficient memory, the buffer will support two printers printing at the same time, each printing multiple files. The relative size of the print buffer is determined by the amount of available Z-RAM or RamWorks memory. It does not affect the size of the desktop.

*Note:* This feature will not work with all printer interfaces. It was designed to work with all standard interfaces supporting the Pascal 1.1 protocol for status checking. If you cannot get this option to work, your interface does not support this official protocol. The Apple *//c* serial ports support this standard, but some serial-to-parallel printer-interface converters do not. Contact the manufacturer of your printer card or converter for details on upgrades.

As the desktop file to be printed is being loaded to the buffer, the message "Filling buffer. . ." will appear on the screen and the printer will begin printing. If the printer is printing an exceptionally large file and the computer seems to be locked in the "Filling buffer..." mode, it is probably caused by insufficient buffer space. The AppleWorks desktop will return when the buffer can hold the remainder of the print file.

Press the Esc key while the print buffer is filling to make AppleWorks stop sending the remainder of the print file to the buffer. Sending an Apple-Control-C from the keyboard while the printer is printing will reinitialize (clear) the AppleWorks internal Print Buffer. If your printer or printer interface has a print buffer of its own, the printer may continue to print the remaining contents of its buffer even after the AppleWorks buffer has been cleared.

### Buffer Size Option (GS only)

The Buffer-Size option of the Getting Started menu only affects the size of the Apple IIGS' internal print buffer. (Remember to activate the computer's print buffer by using the Apple IIGS control panel.) Since the print buffer on the Apple IIGs is handled differently from the RamWorks/Z-RAM print buffer, this feature has no effect when used on an Apple *//e* or *//c*.

The Buffer Size option of the enhanced AppleWorks Getting Started menu lets you allocate the amount of Apple IIGS memory space (up to 64K) to be used for the print buffer. With the Apple IIGS Print Buffer ON and the Getting Started Buffer-Size option set to 0 K, the actual buffer size will be determined by the amount of memory (2K or less) that the Apple IIGS memory manager can allocate. Please refer to your Apple IIGS *Owner's Guide* for more information about the internal Print Buffer.

### Print-File Cache

One small file (SEG.PR) on the AppleWorks program disk contains special configuration information about such things as your printer information, standard location of your data disk, and enhancement options. The unmodified version of AppleWorks leaves this information on the program disk and is not preloaded along with the program overlays. Whenever AppleWorks needs information from this file it prompts you to reinsert the AppleWorks program disk. The enhanced version of AppleWorks loads this file into memory at startup and eliminates the need for the program disk (until overlays are bumped from memory). Only when you change the contents of this file (i.e.. add, remove a printer, etc.) does the enhanced AppleWorks prompt you to insert the program disk.

### Reserved RamFactor Size (RamFactor, PC Transporter, and Ram Express) (3.0)

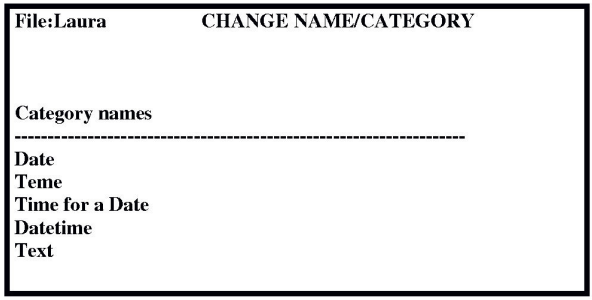
This option allows RamFactor, PC Transporter, and Ram Express users to partition the desired amount of RamFactor Memory for use as a RAMdisk. Otherwise, AppleWorks will use all available memory to expand the desktop. Since the memory on RamWorks and Z-RAM is handled differently from the memory on RamFactor, PC Transporter, and Ram Express, this setting has no effect when used with RamWorks or Z-RAM.

- *Note:* We have also provided features with the RamWorks and Z-RAM products that allow you to control how the memory is used. Refer to the *Partition* and *ProDrive* instructions in each manual.

### Time Display/Data Base Time-Stamp Option

This option was designed to read the output of the Z-RAM Ultra clock, Serial Pro clock, Apple IIGS internal clock, Timemaster HO., or any other ProDOS compatible clock and replace the "Open-Apple-? for Help" message in the bottom line of the AppleWorks screen with a current date and time display. This option also allows you to enter the current date or time into an AppleWorks Data Base category by typing the @ character as the only entry in the category. The category name must contain either the word DATE or TIME. If both DATE and TIME are used in the same category, the program will default to DATE.

Set up your categories...




Then, while in the Insert New Records mode, enter the @ next to the time or date category and press Return...

The Getting Started options menu allows 12 hour or 24 hour time and date display. How the date is displayed on the screen and stamped in the Data Base is affected by the time display option selected.

The 12-hour (USA format) option displays the date as Month/Day/year
The 24-hour (French, German, and military format) option displays the date as Day/Month/year

To use the internal clock of the Apple IIGS, the enhanced AppleWorks must be run under ProDOS 8 or 16, nor ProDOS 1.1.1.

The AECLK.SYSTEM file, required by the //c System Clock, Z-RAM Ultra, and Serial Pro clocks, and the DCLOCK.SYSTEM file required by DClock can be installed to the AppleWorks STARTUP disk before or after using the AW 3 Expander. The instructions for installing clock driver system files are provided in the appropriate Æ clock-product user's manual.

# CHAPTER THREE

# *Apple Works for the ][ Plus*

## Introduction

This section contains the instructions for the AW 3 Expander disk in relation to the Apple 11 Plus. These instructions will tell you what you need to modify AppleWorks to run on an Apple ][ Plus Computer equipped with a Viewmaster 80, RamFactor, or PC Transporter.

The AW 3 Expander allows the Apple ][ Plus to run AppleWorks USA versions 1.2, 1.3, 2.0, and 2.1; German 1.2, 1.4; and French 1.2 and 1.4. The version of AppleWorks and the amount and type of memory you have in your Apple II Plus determine what features and options are available to you.

- *Note:* AppleWorks 3.0 will not run on the Apple ][ Plus.

Here's what the AW 3 Expander can do for the Apple II Plus user:

Enable AppleWorks 1.2, 1.3, 2.0, or 2.1 to run on the Apple][ Plus.

- *Note:* The AW 3 Expander will modify AppleWorks 1.2 so that it will run on a ][ Plus but version 1.2 will not recognize the RamFactor or PC Transporter memory and, consequently, will not expand the desktop when used with a RamFactor or Transporter.

Patch AppleWorks to support the Viewmaster, Videx or Sup'rTerm compatible 80 column display.

Support alternate keyboard commands to emulate Apple //e keys not available on the Apple ][ Plus keyboard.

Preload AppleWorks into memory for improved AppleWorks speed; fewer disk accesses (for versions 1.3, 2.0, and 2.1 with a RamFactor or PC Transporter).

Give AppleWorks multiple disk file-saving* capability.

Reserve RamFactor/PC Transporter memory* for use as a RAMdisk (for v1.3, 2.0, and 2.1).

Allow on-screen AppleWorks time display. (Option for ProDOS compatible clock cards.)

Support Data Base time-stamp (option).

**see *About the New Features* for descriptions of these enhancements**

## ISOFTWARE Required:

An Applied Engineering AW 3 Expander utility disk.

- **Warning:** Use the AW 3 Expander only on backup COPIES of your AppleWorks disks! Store your original disks in a safe place.

AppleWorks, version 1.3, 2.0, or 2.1. (See previous page for non-U.S. versions.)

If you have access to a computer that will boot AppleWorks (//e, //c, or IIGS), the version number is indicated on the AppleWorks Startup screen. See the illustration, *AppleWorks Version Number* (page *5).* Version 2.1 is recommended. Contact your Authorized Apple Dealer for upgrade information.

## IMinimum HARDWARE Required:

An Apple ][ Plus with 64K of Random Access Memory (RAM). An Apple II won't do! It has to be an Apple II Plus with Applesoft BASIC in ROM and 48K of RAM on the main board.

- *Note:* AppleWorks 2.0 and 2.1 do not support exponential functions in the spreadsheet when used with a 64K machine. An Apple II Plus must have either a TransWarp or an extra Pocket Rocket for exponential functions.

A 16K Language Card in slot 0. (See the note about TransWarp™ below.)

A V:iewmaster or Videx compatible or Sup'rTerm compatible 80 column display card in slot 3.

- *Note:* To run AppleWorks version 1.2 you must use a Viewmaster 80.

A video monitor capable of displaying 80 column text.

At least one disk drive.

## IOptional Hardware:

PC Transporter and or RamFactor card in any available slot.
Ram Express card in any available slot.

- Applied Engineering's TransWarp accelerator card in any available slot. (Highly recommended! - The TransWarp card increases the processing speed of the computer, functions as a 16K language card, and gives you 55-56K of available desktop in AppleWorks.)
- TimeMaster H.O, or any ProDOS compatible clock card.

## Enhancing AppleWorks

Now that you know what you need, follow the step-by-step instructions in the section *Modifying the Apple Works disks.*

## Alternate AppleWorks Keyboard Commands

The Apple ][ Plus does not have some of the special //e keys required by AppleWorks. Through the magic of software, the AW 3 Expander has patched AppleWorks to support the emulation of these special keys.

To enter an Open-Apple command on the Apple ][ Plus keyboard, press and release the Esc key (which will display an inverse A for the cursor to signify this mode), then press the key command. For example, ♁ A would be entered as Esc A; ♁ 4 would be Esc 4. Control commands are entered by holding the Control key down while pressing the appropriate letter key.

## Alternate AppleWorks keys

| Apple //e Keyboard | Apple ][ Plus Equivalent |
|---|---|
| Cursor Up ≠ | Control K |
| Cursor Down Ø | Control J |
| Cursor Right Æ | Control U or Æ |
| Cursor Left" | Control H or " |
| Tab | Control I |
| Caps Lock | Control A |
| Esc | Esc Esc |
| Delete | Esc # |
| @ | Esc” |
| ^ | Esc— |
| _ | Esc - |
| \ | Esc& |
| \| | Esc ! |
| ' | Esc’ |
| ~ | Esc $ |
| [ | Esc < |
| ] | Esc > |
| ( | Esc ( |
| ) | Esc ) |

## Lower Case Characters

When the modified AppleWorks is booted, it automatically enters lower-case mode. To toggle this shift lock feature between upper and lower case, use Control-A. (Press the A key while holding down the CTRL key.)

## Optional Shift Key Hardware Modification

Using the modified AppleWorks with this one wire modification, the shift key becomes a real shift key, eliminating the need to constantly toggle Control-A. The instructions for this modification should be in your 80 column card manual.

# APPENDIX A

## *Copying Disks with Filer*

We have included Filer, a utility program, on the AW 3 Expander disk to enable you to make backup copies of your disks that are not copy protected. The instructions below tell you how to use Filer to copy from disk to disk. See for instructions on using Filer to copy AppleWorks to your RAMdisk.

1. Load Filer.

2. Select "Volume commands" (v).

3. Select "copy a Volume" (c). The settings default to a two drive set up with your master in Slot 6, Drive 1 and your copy disk in Slot 6, Drive 2. Adjust to your set up. (If you only have one drive, you can copy from S6, D1 to S6, D1.)

4. Press return to accept the default settings or enter your own.

5. Insert the master disk in your drive that you have set the program to copy from. Insert a blank disk (it does not need to be formatted) in the drive you have set the program to copy to. The blank disk must have the write protect tabs removed.

6. Press the Return key.

7. Name your volume. It will default to the name of the master disk (ex: When copying AppleWorks, the volume name will default to /APPLEWORKS". Hit return or give it a different name. *(You* must give the front and back side of AppleWorks the same name.)

8. When you press return, the copy program will begin formatting the copy disk. Then the words "READING" and "WRITING" will flash on and off the screen to entertain you while you wait.

9. When the program is finished copying, it sends the message "copy COMPLETE' to the screen.

10. Remove both disks. Put your master disk in a safe place and label your copy disk. You will make your modifications to the copy disk.

# APPENDIX B

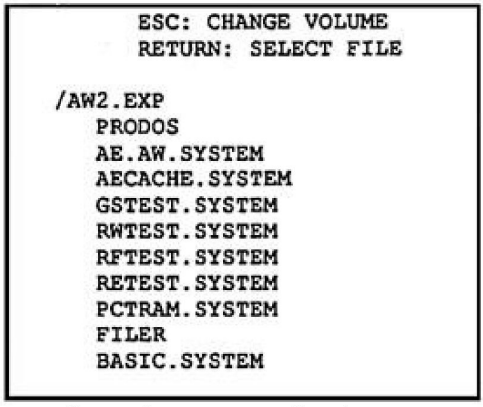
## *Bird's Better 'Bye'*

### What It Is

The AW 3 Expander contains a modified version of ProDOS 8. It Incorporates a program selector, Bird's Better Bye' (created by Alan Bird), that lets you exit one system file and easily run another system file (e.g. APLWORKS.SYSTEM, BASIC.SYSTEM, FILER) from a menu.

### How to Use It

To use this 'BYE' command, boot your copy of the AW 3 Expander disk or copy the PRODOS file from the AW 3 Expander disk to your boot disks. Then, anytime you quit a system program (such as AppleWorks), a menu of the First 16 executable system files and/or subdirectories on that disk will be displayed on the screen. This menu can also be called from the Applesoft BASIC prompt by entering the 'BYE' command.




**Sample screen display**

The sample screen above shows the AW 3 Expander disk online and lists its executable system files.

Use the up and down arrow keys to highlight the selection you want to run. The Esc key will change the volume (disk) selection to the next on-line volume. The Return key selects the currently highlighted file or subdirectory name.

Subdirectory names on the disk will be indicated by a '/' ' as the first character of the file name.

# APPENDIX C

## *Autocopy2*

### What It Is

Autocopy2, included on the AW 3 Expander disk, is a program specifically written to copy files from a floppy disk to a RAM volume. You can create your own quick-start disk using Autocopy2 that will automatically load the programs of your choice into RAM every time you boot. Several examples are included in the documentation to help you create your own boot disk.

### For Complete Documentation...

The program s documentation can be viewed within the program by pressing "?" as prompted on the screen. If you'd like a hard copy of the instructions, load the standard text (TXT) file, copy. DOC, into a word processor capable of printing (e.g. AppleWorks),

### How to Run It

To run Autocopy2, boot the AW 3 Expander disk and select the Autocopy2 option from the main menu or run it from BASIC by typing -AUTOCOPY2 at the BASIC prompt (]).

# APPENDIX D

## *Ram Keeper File*

### What It Is

A RamKeeper driver, found on the AW 3 Expander disk, is a replacement for the default GS/OS smartport drivers. The RamKeeper driver speeds up all reads from and writes to the RamKeeper ROM disk by 20% when used with GS/OS.

+ *Note:* This is not a replacement for the RamKeeper Desk Accessory. The file created on the ROM disk, AERAMKEEPER, should still be placed in the DESK.ACCS folder as described in the RK manual.

### How to Use It

Those using the RamKeeper and **GS/OS** should copy the file, RAMKEEPER, to their SYSTEM/DRIVERS folder in the GS/OS SYSTEM folder. It will then load automatically at bootup.

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