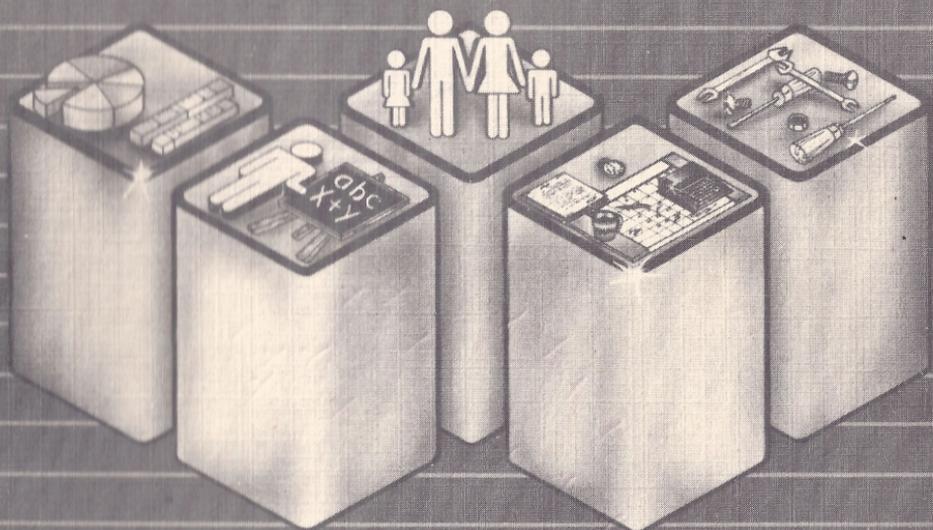


MERLIN PRO™ FULL SCREEN EDITOR

By Glen Bredon



Roger Wagner
PUBLISHING, INC.



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INSTRUCTION MANUAL

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MERLIN PRO FULL SCREEN EDITOR

By Glen Braton

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MERLIN PRO FULL SCREEN EDITOR

The Merlin Pro ProDOS and DOS 3.3 versions load the Standard Editor on boot. The Merlin Pro manual refers to this editor and it is recommended that you become familiar with its operation.

At some point you may prefer to use the Full Screen Editor instead. Please read the information on this page carefully. It has been provided to help avoid confusion.

The easiest way to identify which editor is in effect is to enter the Editor and press A to add a line. If the line number appears in the upper right hand corner of the screen, the Full Screen Editor has been installed.

To have the ProDOS Full Screen Editor installed on boot, you should first make a copy of the Merlin Pro-Pro DOS version. In the sub-directory UTIL is a file called FS.ED. RENAME this file to ED and you're all done. For easy reference, write "Full Screen Editor-ProDOS" on the diskette label.

To have the DOS 3.3 Full Screen Editor installed on boot, you should first make a copy of the Merlin Pro-DOS 3.3 version. LOAD the HELLO program and add the following line:

```
80 PRINT CHR$(4)"BRUN ED"
```

and then SAVE HELLO. For easy reference, write "Full Screen Editor-DOS 3.3" on the diskette label.

SOURCEROR

Most Merlin Pro utilities such as XREF and PRINTFILER can be in memory at the same time as the Full Screen Editor version. However, on the ProDOS version, the Full Screen Editor uses the same memory area as SOURCEROR. Therefore, you must boot the Standard Editor version of Merlin Pro to use SOURCEROR. This does NOT apply to the DOS 3.3 version.

See the additional notes on using SOURCEROR and SOURCEROR.FP at the rear of the Full Screen Editor manual.

GETTING STARTED

Merlin Pro's Full Screen Editor is very compact and powerful. It is on both the DOS 3.3 version and the Pro DOS version, where it is in the UTIL directory.

It is compatible with the //c and //e 80 column cards as well as the Videx Ultraterm and Checkmate Technology Multiview cards (all modes). Its command structure is modeled closely on the Merlin Pro Standard Editor so that you don't have to learn another radically different set of commands.

After it has been loaded, it is accessed from within the editor by typing an 'A' command. If there is a source file in memory then the 'E' command also sends you to the Full Screen Editor.

If you have one of the new 65802 16-bit microprocessors in your Apple //e or //c then you can make use of the 'ED.16' version of the Full Screen Editor. This is faster and has some added capabilities such as the ability to move source files easily and quickly between the DOS 3.3 and ProDOS versions.

The 65802 can be plugged right into your Apple //e or //c, replacing the existing 65C02 or 6502. There are no known incompatibilities with this chip, except for those that already exist for the 65C02. The entire 65C02 instruction set is supported, with the exception of the so-called Rockwell codes. Those codes only exist on the Rockwell version of the 65C02 and do not exist on the versions used by Apple Computer for the //c or //e enhancement.

It is strongly suggested that you install the Enhancement Kit in your //e if you don't already have it. This is not strictly required but the Mousertext Toolkit characters will produce a substantial improvement of appearance.

COMMAND SUMMARY

The command structure follows that of the Standard Editor as much as possible. Commands that are 'global' in nature use the same control character as the 'local' command, but use the Open Apple (OA) key as a prefix instead of the Control key. If you are familiar with Merlin Pro's Standard Editor, or the many editors with similar command structure, these commands will seem very natural.

CONTROL COMMANDS (line oriented and cursor moves)

Control B Cursor to beginning of line
Control D Delete character under cursor
Control F Find character typed next (recursive)
Control I Toggle character insert mode
Control L Toggle lower case convert mode
Control N Cursor to end of line
Control Q Delete all characters from cursor to end
Control R Replace original line
Control S Show memory status box
Control W Find next word (alphanumeric)
Control X Cancel global exchange in progress
Control Y Remember current line for recall by OA Y

Cursor keys Move cursor

DELETE Delete character to left of cursor
ESC Move cursor to start of next line
RETURN Carriage return and insert new line
TAB Toggle character insert mode

OPEN APPLE COMMANDS (global)

OA DELETE Delete previous line (UNDO by OA TAB/OA R)
OA DOWN ARROW ... Cursor down 10 lines, screen centered
OA ESC Return to standard editor
OA TAB Insert new line at cursor
OA UP ARROW Cursor up 10 lines, screen centered

OA B Go to beginning of source, screen centered
OA C Cut to clipboard, start select if 1st time
OA D Delete current line (UNDO by OA TAB/OA R)
OA F Find text (recursive)
OA I Insert new line at cursor
OA L Go to label in label column or line number
OA N Go to end of source
OA P Paste clipboard at line containing cursor
OA Q Select all text from current line to end
OA R Replace last line deleted with current line
OA W Find word (recursive)
OA X Global exchange (produces dialog box)
OA Y Go to last Control Y line, screen centered
OA Z Reprint screen, screen centered

OA 8 Produce line of asterisks
OA 9 Produce a line of boxes
OA - Produce a line of dashes
OA = Produce a line of equal signs

EXPANDED EXPLANATIONS OF SOME COMMANDS

CUT AND PASTE

Open Apple C starts the select mode and selects the line the cursor is on. After this, you can select further lines with the down arrow key. The up arrow key does not cancel select mode, so you can adjust the select range if you go too far.

However, the select mode will be canceled if you move the cursor above the first selected line or past the top of the screen. Any other command will cancel select mode. Selected lines are shown in inverse. When you want to cut, type OA C again. The selected lines will disappear from the screen and are placed on the clipboard.

Open Apple Q selects everything from the current line to the end of the file for cutting. OA C will then cut it; anything else will cancel the select mode. This provides a simple means of moving the entire file to the clipboard.

Open Apple P pastes the current contents of the clipboard on the screen starting at the line containing the cursor. Only full lines are moved. This does not change the contents of the clipboard, so that this can be used to replicate a range of lines.

FIND TEXT and GOTO LABEL (or line number)

The OA F command brings up a box which asks for the find text. It then finds the first occurrence of the text in the entire text file. The text can be anywhere on a line. After the first find, you can find the next occurrence by typing another OA F. You can edit the line and then type OA F to go to the next occurrence.

The OA B command and the Control-S status command both cancel the find mode, as does failure to find the text below the current line. This continued find mode is indicated by one or more '+' signs preceding the line number at the top right corner of the screen. The continued find starts from the row the current line, so it locates only one occurrence per line.

The OA W command is identical to OA F except that it finds only whole words bounded by non-alphanumeric characters. If you type either OA W or OA F to find the next occurrence, this mode will change accordingly.

The OA L command asks for a label or any text to locate. It finds the first occurrence of that text in the file, but only in the label column. Only the characters typed are compared with the labels, so in some cases you may wish to end your input with a space.

The intended use for this command is to move rapidly to a particular place in the source. You can use 'markers' to enhance the capability of this command. Therefore, if a line starts '* 7', you can specify '* 7' as the find text for this command and it will work.

If you type a number for the label in an OA L command, you will be sent to that line number. This is convenient when editing a source file using a printed listing.

In all cases the line containing the text is moved to the center of the screen, unless it is within the first 10 lines of the start of the source.

GLOBAL EXCHANGE

The OA X command produces a dialog box that asks for the text to change, and the new text to replace it. If you just type RETURN for either of these, the command is aborted, and then the file is searched for the change text. Unlike the FIND command, it looks only for full words. That is, the text found must be bounded by non-alphanumeric characters or it will be ignored.

If text is found with this method, the screen is reprinted with the replacement made and the cursor is placed on the first character of the replacement. Now you must hit a key to continue. Pressing RETURN or any other control character will defeat the change and the routine will look for the next occurrence of the text to change. Pressing the space bar or any other character will accept the change and the routine will continue.

One exception to this is the Control-X key, which will abort the process and return control to you. Another exception is the 'A' key which will cause all occurrences to be changed. Caution: this can be aborted only by RESET.

You can tell when the routine is finished by the fact that the line number at the top right is missing during the exchange sequence and will return when there are no more matches for the change text, or until you press Control-X.

REPLACE LINE and DELETE LINE

The OA D and OA-DEL commands delete a line from source and place it in a special 'undo' buffer, which is independent of the clipboard. The OA R command exchanges the current line with this undo buffer. Thus, two successive OA R commands cancel one another out. OA R on an empty line places the undo buffer at that line and clears the undo buffer.

Note that these commands can be used to move a single line to another location. Just place the cursor on the line to be moved and type OA D; then move the cursor to an empty line or anywhere else. Now press either OA-TAB or RETURN to create an empty line, and then type OA R.

OA R can be used by itself to easily interchange two lines. Just place the cursor on the first line, press OA R, move the cursor to the second line, press OA R again, move the cursor back to where the first line was and press OA R for the third, and final, time.

OPEN APPLE UP AND DOWN

The OA DOWN ARROW command moves the cursor to the 10th line below its present position and then reprints the screen so that the cursor will be on the 11th line. If this command is repeated it has the effect of moving the current line to the top of the screen and then moving the cursor to the 11th line on the screen.

Similarly repeating the OA UP ARROW command moves the top line to the 11th line on the screen and puts the cursor on that line.

STATUS

The Control-S command displays a status box showing the number of used and free bytes.

CHARACTER INSERT MODE

The character insert mode defaults to ON upon entry. When you change it with the TAB or Control-I key, it remains that way until changed again. Thus, moving from one line to another has no effect on this status.

The status is indicated by the type of cursor displayed. It is an inverse 'I' when insert mode is active, and an inverse space when it is not active. The cursor is an inverse 'F' when you are in find mode.

LOWER CASE TOGGLE

Ordinarily, unless the cursor is in a comment or an ascii string, lower case characters will be converted to upper case characters. This is also defeated when the tabs are zeroed. To override this conversion, or to reinstate it, just use the Control-L command. This conversion is also in effect when you use the OA F or OA L find commands.

LINE NUMBER and EOL MARKER

At the upper right hand corner of the screen, the number of the line containing the cursor is printed. Somewhat to the left of this you may see a vertical bar. This bar indicates the position at which an assembly listing will overflow the printer line. You can put characters beyond this mark, since it is for information only. The position of the mark is calculated using your line length parameter in the PARMS file. If this is very large, the mark will not be shown.

GENERAL REMARKS

When you move the cursor between lines its horizontal position will jump around. This is because it is based on the actual position in the line and not on the screen position. If the tabs are zeroed you will not notice this, except for the fact that the cursor is never beyond the last character in the line.

The editor works with any 80-column card and supports all modes of the Ultraterm and Multiview cards. Except for minor details, it even works on the 40 column screen. However, only that part of a line that can fit on one screen line is displayed.

The maximum line length is 192 characters. Lines longer than that will be truncated IF they are edited.

The editor uses the mousetext characters in some places, but this is just cosmetic. In 40 column mode these will show up as strange characters because Merlin does not use the new video firmware in that mode.

You must return to the standard editor (OA ESCAPE) in order to use the ASM command to assemble, or to Quit and access the EXEC mode, the monitor, etc.

If the 'search character' parameter location is in negative ascii, then when you return to the standard editor, the 'A' and 'E' commands no longer send you to the screen editor. This way you still have use of the standard editor if you desire. The entry to the screen editor is reestablished when you go to EXEC mode and back, or when you assemble a file.

On the other hand, if you defeat the 'Update source (?)' question by putting a zero in this parameter location, then the 'A' and 'E' commands will always send you to the screen editor. The standard editor can be used only for immediate commands. Using any positive byte except zero for this parameter will defeat the 'Update source (?)' question but still allow access to the standard editor.

The editor conflicts with some other utilities in its use of memory such as Sourceror. To use these utilities you should remove the editor by running the REMOVE.ED program. This pertains only to the ProDOS version.

Users of the Ultraterm or Multiview cards can set up any mode of the card by typing the appropriate ESCAPE sequence when in the standard editor. That mode will then be automatically supported when you go to the screen editor.

Unlike the standard editor, the Control-Q key does not move to the next line after deletion of characters from the cursor on. This makes it possible to use the Control-R key to undo this command.

An assembly will delete the current clipboard file. RESET will return to the EXEC mode with everything intact.

The editor has keyboard buffering so that keys will still be read during time consuming operations such as reprinting the screen or moving data to and from the clipboard.

MEMORY USAGE

The ProDOS version uses 12 pages (3k) from the top of source file memory. If you use the keyboard macro file EDMAC it uses an additional 2 pages. It is protected from overwrite. The DOS 3.3 version uses the other language card and thus does not use any memory ordinarily used by Merlin Pro.

INSTALLING ED ON THE FLY

If you have deleted line 80 from the DOS 3.3 HELLO program, and you want to install the Full Screen Editor from with Merlin Pro, press C to Catalog from the EXEC mode, and at the Command prompt type BRUN ED. You can also BRUN ED from BASIC after Merlin Pro is in memory.

With the ProDOS Standard Editor version, press D for Disk command from the EXEC mode, and type BRUN/MERLIN/UTIL/FS.ED at the command prompt.

THE KEYBOARD MACRO PROGRAMS (EDMAC)

These are versions of the keyboard macro parts of KEYMAC that will support the screen editor. The macros are invoked by pressing the Closed Apple key along with other keys. The source files are provided so that you can change the macro definitions if you so desire. To set up the keyboard macros, press C to Catalog from the EXEC mode (assuming ED has been loaded), and at the Command prompt, type BRUN EDMAC.

OOOPS

Virtually any command can be undone. The proper undo command is of the same 'type' as the command you want to undo. Line editing commands are undone by Control-R. This includes the OA 8, OA 9, OA -, and OA = commands which are regarded as line editing commands for this purpose.

Line deletion commands OA D and OA DEL are undone by creating an empty line with OA TAB and then OA R. If you forget to create the empty line, type another OA R and then do this.

The OA R command undoes itself. A CUT is undone by a PASTE without moving the cursor off its line.

THE ED.16 VERSION

ED.16 is for use with the 65802 or 65816 chip. The speed sensitive parts of the editor make use of the enhanced abilities of these chips. For very large files the difference is substantial. Do not run ED.16 with a 6502 or 65C02. It should have no effect, but this has not been tested.

If you have a 65802 in your Apple, you can use ED.16. Just rename ED.16 so that it becomes 'ED'. If you have a program selector, tell the selector to use 'ED.16' as a 'startup'.

There are extra features in ED.16. The 'A' entry goes to the end of source and the 'E' entry with line number goes to that line, unless the line is less than 11. The Control-S status request also shows the length of the clipboard, if any.

There are two more OA commands, OA Left Arrow and OA Right Arrow. These move through the text a page at a time. This is roughly equivalent to two successive OA Up or Down Arrows.

The Control-O override command enables insertion of control characters in the text file.

The clipboard in this version only can be used to transfer files between ProDOS and DOS 3.3. To do this, place the cursor on the first line and type OA Q then OA C which will place the entire file in the clipboard. Then boot up the other version of Merlin Pro and ED.16 and type OA P.

If you use OA F, OA W, or OA X while a range is selected by the OA C and Down Arrows, only that range will be searched. Otherwise the entire file is searched. These commands cancel the select mode. If the OA P paste command is used when a range is selected, the clipboard replaces the text in that range. Note: text deleted in this manner is not recoverable.

Things that will destroy the clipboard:

1. Turning off the computer.
2. Writing to /RAM.
3. Using any program that writes to auxiliary memory.
4. Using the SWAP command in the standard editor.
5. Assembling a file.

Things that the clipboard will survive (ED.16 only):

1. A cold boot (Control OA RESET).
2. Running a program that does not use auxiliary memory.
3. /RAM format request (but no writing of files).
4. Loading and saving files (all ED versions).

LOADING OTHER UTILITIES

You can have another utility such as XREF or Sourceror, loaded on boot instead of ED. To do this, change the name 'UTIL/ED' located at \$2006 with a leading length byte, in MERLIN.SYSTEM, to the pathname of the utility you want executed upon boot. This is for the Pro DOS version only.

TECHNICAL INFORMATION

The editor has been arranged so that certain parameters can be altered with little effort. At relative byte 3 in the file there is an address which points to the main part of the program, past a relocating header.

This address is referred to as START, and is the address in the file when loaded and not necessarily when it is running. At START there is a JMP. After the jump there is an address for use in linking macro programs (see EDMAC source).

At START + 5, there are characters used for the four cursors (inverse I, F, space, and F; the two F's depend on the state of the insert mode). You can substitute any characters you want here except that you should not use the range \$40-\$7F.

At START + 9 is the byte \$A0 which controls the blink rate. Raising this makes the blinking slower. This is desirable with speedup cards. A value of 0 gives the slowest rate.

At START + 10 is a table of command characters used without the OA key. Some commands such as up and down arrow keys are handled separately and are not in these tables. This table ends with a zero. Following this is the table of the key commands used with OA, again ending with a zero.

IMPORTANT NOTE

Do NOT use KEYMAC (instead of EDMAC) when ED is in memory!

BASIS 108 VERSION

On the BASIS 108 only the ED.16 version has been implemented. The Full Screen Editor can be used only if you have a 65802 chip.

The 'Open Apple' commands are implemented by 'shift-control'. Thus shift-control C is the Cut command, etc. On the BASIS there is a limited amount of memory for the clipboard: 16K. If you try to cut more than this you get an "Out of Memory" message. Also you cannot Cut out of or Paste into memory above \$8000. Thus some cuts will be disallowed on very large sources. This will also yield the Out of Memory message. Because of this limitation, it is a good idea to avoid such extremely large source files.

There is no version of EDMAC for the BASIS 108.

Following the two key tables is the routine that tests for the control-shift combination. This is followed by 16 zero bytes to accommodate patching, should the user want to change this routine.

The routine should return with Z-flag set (EQ true) if the shift-control (or its replacement) is pressed. The command key itself is read elsewhere. The X and Y registers must be preserved but the A register does not matter. If this routine is changed then the 'OA' command table may also have to be changed. The routine is located at START + \$33 (see Technical Information) but changes to the editor may shift it slightly.

To have the Standard Editor installed on boot, delete line 61 from the HELLO program (eg. BRUN ED.16B).

ADDENDUM

The following addendum is provided for Merlin Pro users that had a version prior to 2.34.

NEW DISK COMMANDS [ProDOS Version]

There is an alternate way to set the disk prefix. Press D for Disk Command, then enter PFX= or PFX=1 to specify Slot 6, Drive 1, or PFX=2 for Slot 6, Drive 2. You can use the new SLOT command to specify slots other than 6. SLOT is to be used with the PFX= and CATALOG command as described below.

CATALOG COMMAND

After using the CATALOG command, if you press =, =1, or =2, Merlin Pro will set the prefix to the volume found in the specified drive and then catalog that volume. If you press OPEN APPLE during a catalog, Merlin Pro lists only the directory files present in the specified directory. If you press CLOSED APPLE during a catalog, Merlin Pro lists only the TEXT files present in the specified directory.

If you press OPEN APPLE and CLOSED APPLE at the same time during a catalog, Merlin Pro lists only the BIN files present in the specified directory. These keys must be pressed and held throughout the entire catalog listing process.

INTERPRETER

If the Merlin Pro ProDOS interpreter cannot find a disk volume required for linking or assembly, it will ask for the correct volume to be inserted. This request can be aborted by pressing CTRL-C or RESET. This only applies to volumes, not files. If you want a PUT opcode to prompt you to switch disks, you must use the full pathname with the PUT opcode.

This feature will not work with the Linker when using one disk drive. If the present prefix does not correspond to any volume online, Merlin Pro will give a VOLUME NOT FOUND error.

The PROGRAM TOO LARGE error message has been changed to MEMORY IN USE. See page 104 in the main Merlin Pro manual.

NEW DISK COMMANDS [DOS 3.3 Version]

The DOS 3.3 version does not perform the same volume checking as the ProDOS version. However, it is possible to simulate this with the following code:

```
LST
XXX KBD "INSERT MYFILE DISK AND TYPE 0 <RETURN>"
PAUSE
```

The assembler will stop at KBD on the first pass and assign a 0 value to XXX (any dummy label you desire). PAUSE forces a pause on the second pass and LST makes sure you see the KBD line. On the second pass, assembly resumes when you press any key (it is not necessary to type 0 and press RETURN).

[ProDOS and DOS 3.3 Versions]

MERLIN PRO AND "SPEED UP" CARDS

Merlin Pro will work either in main or auxiliary memory (aux is the default). If you are using the main memory version, you will get about a 1.6 speed improvement with the Speedemon card, and about a 2x increase with the Accelerator. This is due to the heavy use of auxiliary memory during assembly. To select the main memory version with DOS 3.3, change the HELLO program to BLOAD MERLIN.X instead of MERLIN.

To select the main memory version with ProDOS, use a \$C3 as the fifth byte in the PARMs file. The V-bit of that location is used as a flag to instruct the interpreter to make the main memory modifications. A + sign after the MERLIN PRO VERSION 2.xx on the EXEC mode screen indicates the main memory version is active.

Some utilities do not work with the ProDOS main memory version because ProDOS is moved to aux memory. Programs that do not switch zero pages will work fine. Programs designed to be run in 64K will most likely run properly. The Filer and Convert programs run as long as the - command is used to run them, and all Merlin Pro utilities will work. The QUIT command moves ProDOS back to main memory.

MACROS

Errors in macros no longer abort assembly.

LINKER

The addresses of all external references are printed whether or not they are resolved. If you use the TRON command prior to the LINK command, only the errors will be printed in the external list (NOT RESOLVED and DUPLICATE errors).

LUP

In a LUP, if the @ character appears in the label column, it will be increased by the loop count (thus A,B,C ...). Since it is a countdown, these labels go backwards (the last label has the A). Thus it is possible to label items inside a LUP. This works with a maximum LUP length of 26, or you will get a BAD LABEL error and possibly some DUPLICATE LABEL errors.

CLOCK

This utility is an interrupt driven software clock for the //c which lacks a clock to do ProDOS time stamping. It uses the VBLINT interrupt provision of the //c. This should be used with caution! If overwritten, anything might happen. Press RESET to turn off interrupts. The source files are provided in the SOURCE directory on the ProDOS version.

CONV.LNK.REL [ProDOS only]

This makes Merlin Pro's REL files compatible with Apple's RLOAD and RBOOT programs. It will convert a Merlin Pro LNK file to Apple's REL format (only if there are no externals). You can BRUN it from the EXEC mode. If there is a source file in memory, it will just return, so enter NEW first in the Editor. You will be prompted for the pathname of the file. The program will do the conversion and set up the converted file for Merlin Pro's object save command. The CONV.LNK.REL utility does not write anything to disk and does not delete or otherwise damage the original file.

You will be prompted for the pathname of the file you want to convert. The program will do the conversion and set up the converted file for Merlin Pro's object save command. The CONV. LNK.REL utility does not write anything to disk and does not delete or otherwise damage the original file.

CLR.HI.BIT [ProDOS only]

This converts a source file in memory to positive Ascii so the file can be sent to other programs that expect data in this form, such as Apple's ProDOS ED/ASM. To use it, just BRUN UTIL/CLR.HI.BIT and then save the source. CAUTION: If you reenter the Editor, the source will be deleted from memory, since the Editor does not like this format.

65C02 SPECIAL NOTES

To assemble or disassemble 65C02 code with the older //e ROMs, you must first BRUN MON.65C02. This must be done from BASIC if you are using the DOS 3.3 version. This utility is not needed with the newer //e or //c ROMs.

With both versions, you MUST use the XC opcode (see page 75 for details) as the very first line in your code. This flag tells Merlin Pro you are using 65C02 (or 65802) opcodes.

You will have problems if you do not use the standard 65C02 opcodes as specified by GTE, NCR, and Rockwell. In creating the //c Reference Manual, Apple apparently did not check with the manufacturers regarding the final set of opcodes. Thus, Apple refers to three non-standard opcodes.

For example, to increment the Accumulator, you must use INC with no address argument, not INA. Branch on Bit Set (BBS) and Branch on Bit Reset (BBR) are also non-standard opcodes and are not supported by the NCR and GTE chips.

MANUAL CORRECTIONS and ADDITIONAL INFORMATION

(Page 109)

Configuration (ProDOS version)

Configuration data is kept in a file called PARSMS which is loaded when the assembler is run. To change the data in the source file called PARSMS.S, with the prefix set to /MERLIN/, type L to Load Source. Then type SOURCE/PARSMS at the prompt. When you are done making changes, reassemble the file. Use S to SAVE the source code as /MERLIN/SOURCE/PARSMS (Merlin Pro adds the .S automatically). Then save the object code as /MERLIN/PARSMS by using the O command.

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SOURCEROR

Introduction

SOURCEROR is a sophisticated and easy to use co-resident disassembler designed to create MERLIN source files out of binary programs, usually in a matter of minutes. SOURCEROR disassembles 6502, 65C02, 65802, and SWEET 16 code.

Using SOURCEROR

1. [DOS 3.3] From the EXEC mode, type C to CATALOG Merlin Pro . At the Command prompt, type BRUN SOURCEROR.

[ProDOS-See note on page 1 of this manual] From the EXEC mode, type D for DISK COMMAND. At the prompt, type BRUN/MERLIN/SOURCEROR/OBJ.
2. From the EDIT mode, use ESC CTRL-Q (not Escape-4) to set the screen to 40 columns, then type USER. If the screen is in 80 columns, the USER command will be ignored.
3. You will be asked if you want to load an object file to be disassembled. If you have loaded the object file prior to using SOURCEROR, type N.

If yes, type Y and enter the filename. It will load and show the load address and end of program address. Note: If you type CTRL-S after the filename, files using a RAM version of SWEET 16 can be disassembled.

4. Next, you are asked to press RETURN if the program to be disassembled is at its original (running) location, or you must specify in hex the present location of the file to be disassembled. You will then be asked to give the ORIGINAL location of that program.
5. Finally, the screen displays the disassembly commands. You may begin disassembling now, or use any of the other commands shown. Your first command MUST include a hex address. Thereafter, this is optional.

(Page 125)

4. Type the following, to print the listing to your printer:

```
PRTR 1 "I8ON" APPLESOFT LISTING
ASM
```

(Page 126)

5. Issue the PRTR command: PRTR 1 "I8ON" APPLESOFT XREF
6. Issue the following command: USER 3

(Page 135)

3. Enter the Editor and type in the appropriate USER command:

(Page 137: last sentence in step 3)

In this case enter the following instead of the USER command:
PRTR 8 "filename" page header (quotes only for filename).

(Page 138: last sentence in step 2)

In this case enter the following instead of the USER command:
PRTR 8 "pathname" page header (quotes only for pathname).

MERLIN PRO & SOURCEROR.FP

1) Make a copy of the Sourceror.FP diskette as per the warning on page 124 in the Merlin Pro manual.

2) Boot the Merlin Pro ProDOS diskette.

3) Insert the Sourceror.FP diskette.

4) Press D for Disk command. At the prompt, type:

BRUN/APPLESOFT/SOURCEROR.FP

5) From the main menu, type L to LOAD, then:

/APPLESOFT/APPLESOFT

6) Enter the Editor, and type:

PRTR1""APPLESOFT LISTING

7) Then type:

ASM

N

8) You'll be prompted as follows:

Print DO OFF areas ? (Y/N)

(You may answer Y or N)

Assemble new ROM version ? (Y/N)

(If you answer N, you'll get the Apple II+ version.)

(If you answer Y, you'll be prompted with:)

Assemble //c version ? (Y/N)

(Answer Y for the //c and Enhanced //e version.)

(Answer N for the original //e version.)

SOURCEROR.FP & XREF LISTING

- 1) Boot the Merlin Pro ProDOS diskette.
- 2) Insert the Sourceror.FP diskette.
- 3) Type L to LOAD, then:
/APPLESOFT/APPLESOFT
- 4) Type Q to quit the Editor, and return to the EXEC mode.
- 5) Insert the Merlin Pro ProDOS diskette.
- 6) Press D for Disk command, then type:
BRUN/MERLIN/UTIL/XREFA
- 7) Enter the Editor, then type:
PRTR1"APPLESOFT XREF
- 8) Then type:
USER 3
- 9) Then type:
ASM
N
- 10) You'll be prompted as follows:

Print DO OFF areas ? (Y/N)
(You may answer Y or N)

Assemble new ROM version ? (Y/N)
(If you answer N, you'll get the Apple II+ version.)
(If you answer Y, you'll be prompted with:)

Assemble //c version ? (Y/N)
(Answer Y for the //c and Enhanced //e version.)
(Answer N for the original //e version.)
- 11) Insert the Sourceror.FP diskette at the prompt:

Insert /APPLESOFT/APLSOFT.A.S
- 12) Press Return and you're done.

SPECIAL NOTES

The Merlin Pro ProDOS and DOS 3.3 versions load the Standard Editor on boot. The Merlin Pro manual uses this editor and you should become familiar with its operation.

At some point you may prefer to use the Full Screen Editor instead. Please read the following information carefully. It has been provided to help avoid confusion.

The easiest way to identify which editor is in effect is to enter the Editor and press A to add a line. If the line number appears in the upper right hand corner of the screen, the Full Screen Editor has been installed.

THE ProDOS VERSION

To have the Full Screen Editor installed on boot, you should first make a copy of the Merlin Pro-Pro DOS version. In the sub-directory UTIL is a file called FS.ED. RENAME this file to ED and you're done. For easy reference, write "Full Screen Editor-ProDOS" on the diskette label.

THE DOS 3.3 VERSION

To have the Full Screen Editor installed on boot, you should first make a copy of the Merlin Pro-DOS 3.3 version. LOAD the HELLO program and add the following line:

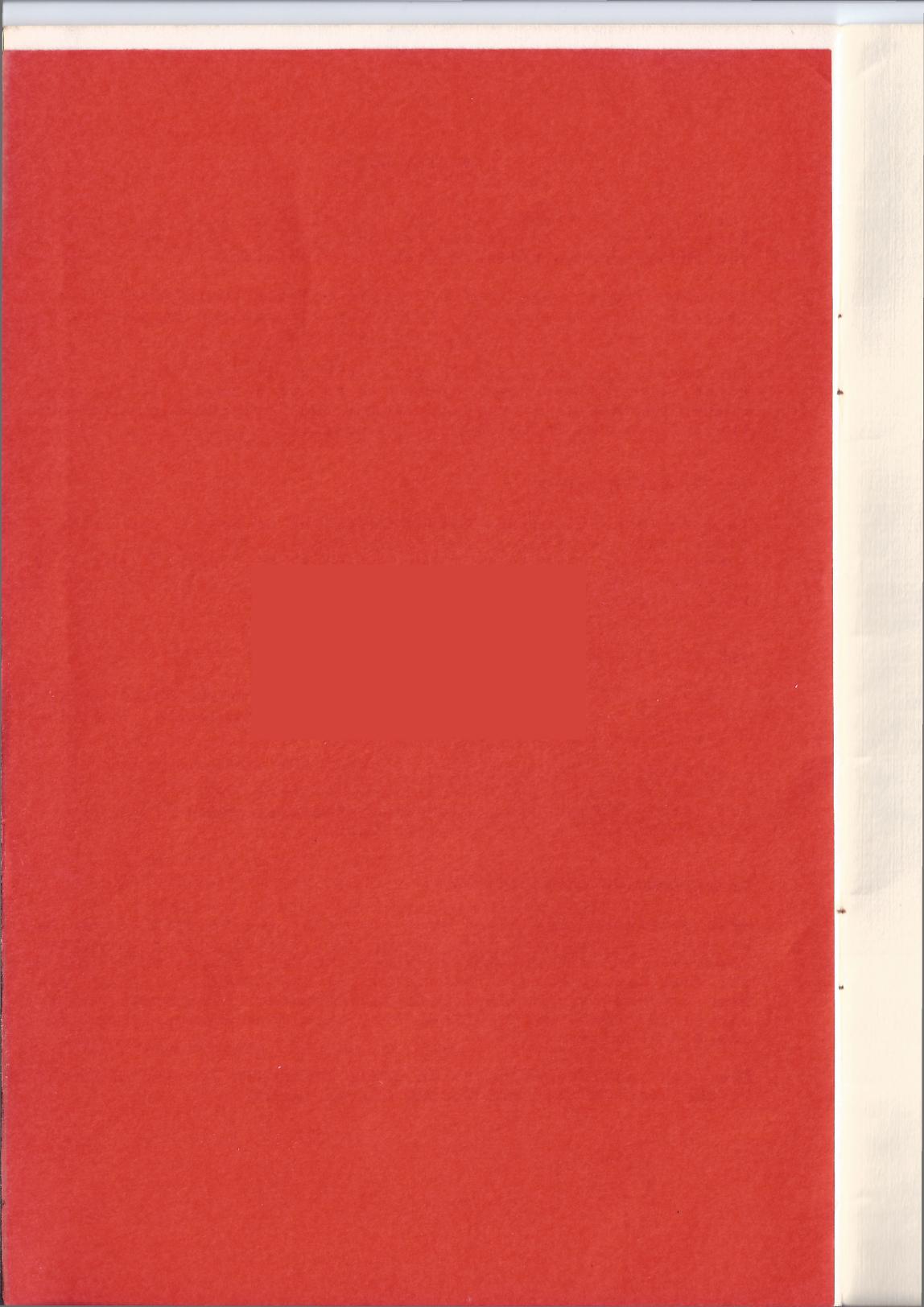
```
80 PRINT CHR$(4)"BRUN ED"
```

and then SAVE HELLO. For easy reference, write "Full Screen Editor-DOS 3.3" on the diskette label.

SOURCEROR AND SOURCEROR.FP

Most Merlin Pro utilities such as XREF and PRINTFILER can be in memory at the same time as the Full Screen Editor version. However, on the ProDOS version, the Full Screen Editor uses the same memory area as SOURCEROR and SOURCEROR.FP. Thus, you must boot on the Standard Editor version of Merlin Pro to use either SOURCEROR or SOURCEROR.FP. This does NOT apply to the DOS 3.3 version.

See the additional notes on using SOURCEROR and SOURCEROR.FP at the rear of the Full Screen Editor manual.



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