

# OMNIVIEW 80 Columns!

OmniWriter 80 by C. David Young **OMNIVIEW** CDY Consulting (214)235-2146 07/01/86  
if you have never done 80 column word processing, you may not know what you are missing, but believe me, once you try it, you will never go back to 40 columns! You too can enjoy professional quality word processing on your ATARI 8 bit computer by installing an OMNIVIEW 80 columns enhancement. Check out these valuable features:

**Environments:** Letter/Data Perfect, Atariwriter Plus (130XE version), BASIC, DOS, MAC65, and many programs which use standard E: device. In addition, OmniWriter (a full feature 80 column word processor and text editor) and OmniTerm (an 80 column communication program with XMODEM, capture, macros, etc.) are provided with every OMNIVIEW sold. Also, a VT100 emulator with built-in Kermit is available for \$10.00. To get your Atariwriter Plus converted to 80 columns, send a copy of the 130XE side (or the original plus a blank disk) to us with \$10.00.

**Features:** Besides crisp, legible 80 columns output, OMNIVIEW offers many other features. OMNIVIEW for the 400/800 has resident ramdisk handlers to support AXLON compatible ram upgrades up to 1 MB! Likewise, the OMNIVIEWS for the XL/XE computers have resident ramdisk handlers for XE compatible ram upgrades. Plus, the latter has its own 800 compatible OS with built-in translator disk, reverse OPTION/BASIC selection, coldstart from the keyboard (reboot without losing contents of ramdisk), FASTCHIP floating point, and built-in 80 column ATRMON. 400/800 is plug-in. XL/XE will require soldering if OS is unsocketed. A non-composite monitor is recommended for serious 80 column work.

**OMNIVIEW XL/XE**  
(standard XL/XE computers)




**OMNIVIEW 256**  
(upgraded 256K XL/XE computers)



**OMNIVIEW 400/800**  
(400/800 computers)



  
Simulated 80 column screen. OMNIVIEW's characters look a little different but are very clear and legible.

## Other Products for Your 8 Bit ATARI!

### Ramrod XL/XE (for 130XE and 800XL):

This is a small board with 3 sockets and a switch that is mounted externally. It plugs in place of the OS chip to allow up to 3 operating systems to be resident. Use it to retain the original OS when installing OMNIVIEW. OMNIMON XL is also an option.

### 256KHL (for 800XL and 1200XL):

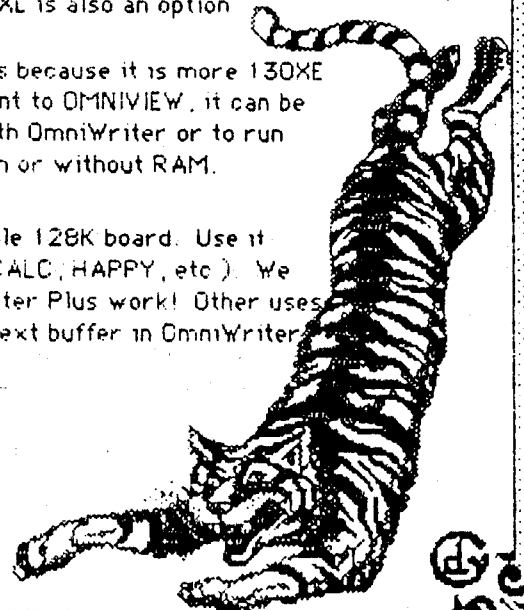
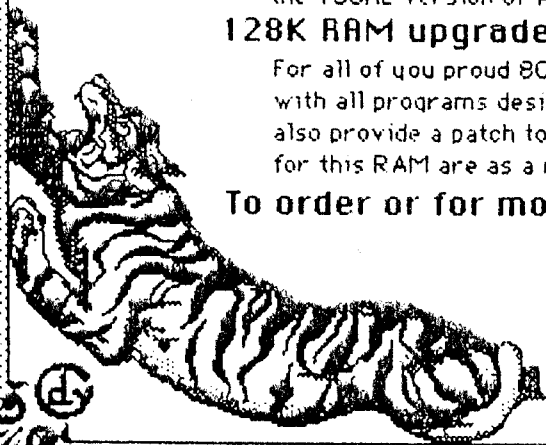
This is the very best 256K upgrade for these two computers because it is more 130XE compatible than any other on the market. A great compliment to OMNIVIEW, it can be used as a ramdisk or as an extension of your text buffer with OmniWriter or to run the 130XE version of AtariWriter Plus. Can be ordered with or without RAM.

### 128K RAM upgrade (for old 800):

For all of you proud 800 owners we sell an AXLON compatible 128K board. Use it with all programs designed to work with AXLON (SYNFILE/CALC, HAPPY, etc.). We also provide a patch to make the 130XE version of AtariWriter Plus work! Other uses for this RAM are as a ramdisk or as an extension of your text buffer in OmniWriter.

To order or for more information contact:

Newell Industries  
P. O. Box 253  
Wylie, TX. 75098



# Introduction to OMNIVIEW

Congratulations on purchasing the most powerful 80 column system for the ATARI 8 bit computers! As of this writing there are a variety of programs that will work 80 columns with OMNIVIEW:

Word processors: **OmniWriter** is the one provided free with OMNIVIEW. We consider it overall the most powerful word processor for the ATARI. We are constantly improving it and upgrades are always available for \$10.00.

**AtariWriter Plus** (130 XE version) will work on 130XE compatible computers. Send a copy of the disk (or the original plus a blank disk) to us with \$10.00 for conversion to 80 columns.

**Letter Perfect** can be converted by you using the patches provided in this manual or we will do it for you if you will send us a copy of the disk with \$10.00.

Data base: **Data Perfect** can be converted by you using the patches provided in this manual or we will do it for you if you will send us a copy of the disk with \$10.00.

Communications: **OmniTerm** is provided free with OMNIVIEW and is useful for talking to a BBS.

**VT100** emulator with built-in Kermit is useful for talking to mainframes and general communication tasks. It is available from us for \$10.00.

Others: **Many others** that use the standard ATARI screen editor (DOS, Basic, MAC65, etc.) will work by simply turning on 80 columns while running the program.

## Getting OMNIVIEW Installed

Before using OMNIVIEW we must get it installed in you computer. How difficult this will be depends on your computer and your proficiency with electronics. Almost anyone can do the installation in the 800. The installation in the 800XL is also not difficult if your machine is socketed. Installation in an 800XL without sockets or in a 130XE should only be attempted by a skilled technician. Follow the installation instructions for your model and then skip to the section on hooking up your monitor.

## 400/800 Installation Instructions

The OMNIVIEW for the 400/800 will plug onto either the OMNIMON piggyback board (on the 400 or 800) or onto Ramrod OS board (on the 800). Follow the instructions for installing whichever board you have and make sure the board works before plugging in OMNIVIEW! (However, if you purchased it with the Ramrod OS board it may already be plugged in.) Power up the system and make sure it acts normally. You might even try popping into OMNIMON, if present, by holding down OPTION and pressing RESET. Once you are confident that the board is working correctly then you can proceed to plug in the OMNIVIEW.

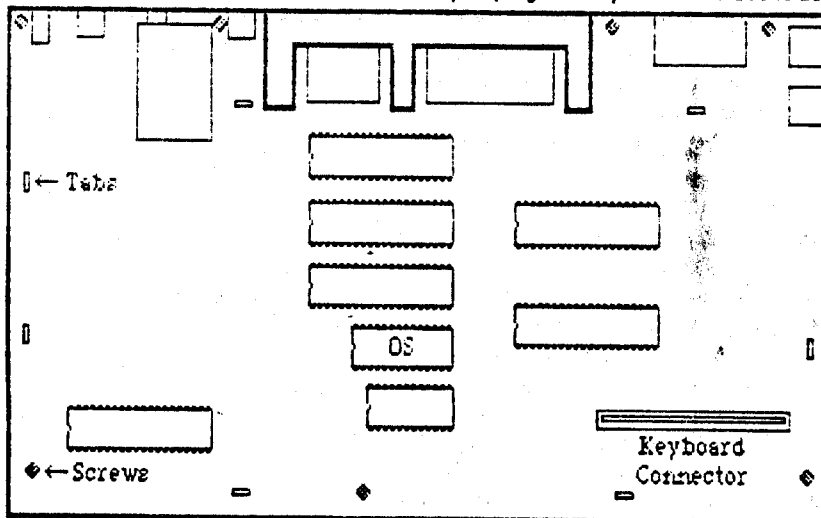
On the piggyback board you will replace the chip with the OMNIMON label with your OMNIVIEW chip. First note the orientation of the notch on the right end of the OMNIMON chip. You must plug the OMNIVIEW chip in the same orientation or you will burn it up! Carefully unplug the OMNIMON chip by inserting a flat blade screwdriver under the chip and gently rocking it back and forth until it is free. Now plug the OMNIVIEW chip in the socket being careful not to bend any pins. To get the pins to line up with the holes you may want to press each side of the chip against a flat surface to bend the legs in slightly.

On the Ramrod OS board the OMNIVIEW chip can be plugged into either socket Z9 or, if there is an OMNIMON in Z9, into Z10. However, if you plug it into Z10 then the board must be modified to add a toggle switch to select either Z9 or Z10. Follow the instructions under RAMROD UPDATES step 1B to install the switch. The notch in the chip should be toward the top of the board.

## 130XE Installation Instructions

**Caution:** This installation should be attempted only by a skilled technician! A chip must be desoldered which can lead to destruction of the board if not properly done. If only ATARI had used a socket for the OS chip!

- 1) Turn the computer upside down and loosen the 4 crosspoint screws holding the case together. Carefully turn the computer over and collect the screws as they fall out.
- 2) Lift off the top of the case and set it aside. Carefully unplug the keyboard and set it aside.

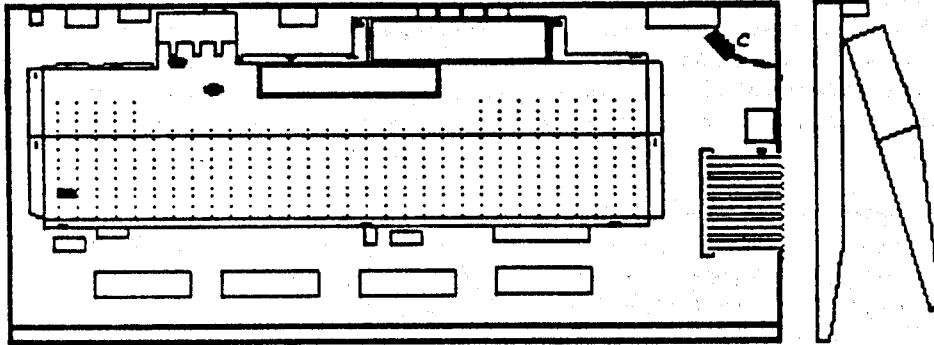


- 3) Straighten the 7 metal tabs around the periphery of the top shield, lift it off and set it aside.
- 4) Remove the 7 screws around the periphery of the motherboard and lift it out of the case.
- 5) The bottom shield can now easily be removed from the bottom of the motherboard. Set it aside.
- 6) Referring to the diagram, locate the 28 pin OS chip. Unsolder the chip. Nobody should attempt to do this unless they have a lot of soldering experience.
- 7) Solder a 28 pin socket in place of the OS chip and, noting the orientation of the notch, plug the OS chip back in. Test the computer by plugging the power and monitor cables back in and turning the computer on. If the screen comes up in BASIC then the socket installation was successful. Unplug the ATARI OS and plug OMNIVIEW XL/XE in its place. Optionally, a Ramrod XL/XE can be plugged into the socket and then both the OMNIVIEW XL/XE and the original OS plugged into the Ramrod XL/XE.
- 8) Complete the installation by reversing the disassembly instructions.

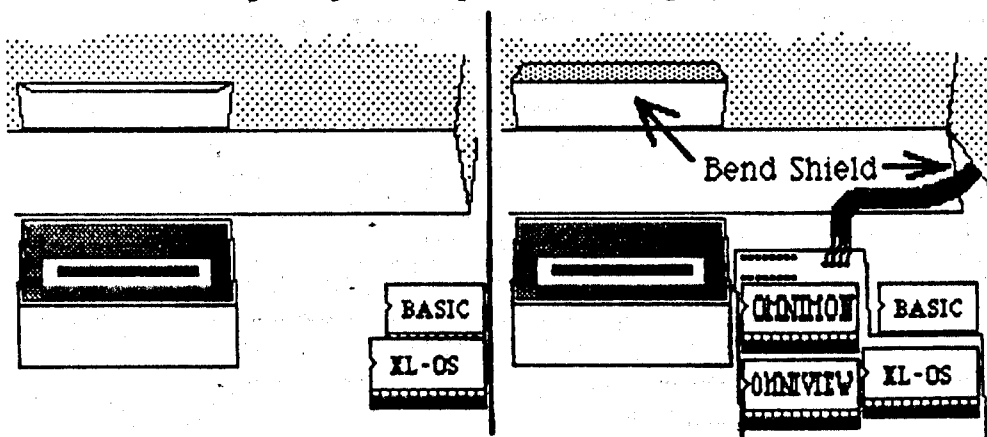
# OMNIVIEW-XL Installation Instructions

**Tools Required:** Crosspoint screwdriver, flat blade screwdriver

- 1) Turn the computer upside down and remove the six crosspoint screws holding the case together.
- 2) Turn the computer upright and lift the top half of the case from the left, pivoting on the right edge, and lay it upside down to the right of the bottom half.
- 3) Now we wish to gain access to the area underneath the metal shield. If your computer has a single screw and tabs around the edge holding the shield down, go to 3A. If there are screws (with nuts) holding the shield down, go to 3B.
  - 3A) Simply remove the screw and straighten the tabs so that you can lift the shield from the front, pivoting about 30 degrees on the remaining two screws at the back. This will bend the two metal tabs at the back slightly but this is of little consequence (see diagram below). Go to step 4.



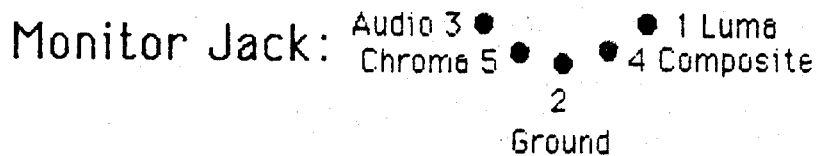
- 3B) You will need to remove the motherboard from the bottom half of the case. In this case you will probably want to disconnect the keyboard cable by gently pulling it out of the connector on the motherboard. Remove the remaining screws holding the motherboard to the case (top right and left corners and between the joystick ports) and remove it by lifting from the left side and prying the case around the joystick ports on the right. It is a tight fit but it should pop out. Once the motherboard is free, you can remove the nuts and screws holding the shield to the motherboard. It is recommended that you leave the two at the back on either side of the expansion port. In this way you can lift the shield from the front to about a 30 degree angle, bending the back tabs slightly (see the diagram above).



- 4) Now you are ready to install the OMNIVIEW-XL. Refer to the diagram above. If you have a RAMROD-XL, go to step 5. Else, locate the XL-OS chip, a 28 pin chip about 2 inches to the right of the cartridge slot. Remove it by inserting the flat screwdriver between the chip and the socket and gently prying and rotating the screwdriver. If the OS chip is soldered directly to the board (this should rarely be the case), you will need to have a skilled technician remove the chip and install a socket.
- 5) Insert the OMNIVIEW-XL chip into the empty socket on the motherboard or on the RAMROD-XL. **Make careful note of the orientation of the chip, otherwise you may burn it up!**
- 6) Complete the installation by reversing the disassembly instructions.

## Hooking up your monitor

Some people are satisfied using OMNIVIEW with a composite color monitor or even a TV set, especially if the color is turned off. However, the best 80 column output is achieved with either a monochrome monitor or a color monitor with separate chrominance and luminance inputs (like the Teknika MJ10, Commodore 1702 or 1802, etc.). But even if you have the right monitor, the output will not look good unless it is hooked up correctly! The ATARI monitor jack has three video outputs: composite, chroma, and luma. If you have a monochrome monitor then you must use the luma output. If you have a color monitor with separate chroma and luma inputs then you must use these two outputs from the ATARI.



Depending on your cable, you may need to modify the connector that plugs into the computer or, if your cable has multiple plugs, select the proper plug at the monitor. When the monitor is hooked up correctly each pixel should be distinct and of equal intensity.

## Using OMNIVIEW

If you have installed everything, your computer is functioning normally, and your monitor is hooked up correctly, then you are ready to start using OMNIVIEW. If you only care about using one of the programs described in the introduction, like OmniWriter, just load up the program and go. It will turn on the 80 columns automatically. If you want to use 80 columns in other programs that normally use 40 columns, or if you want to use some of the other features, like the ramdisk handlers, then you must read on. Read the next section if you have an 800XL or 130XE. Otherwise, skip to the section on 400/800 OMNIVIEW features.

## OMNIVIEW XL/XE/256 Features

### Turning on 80 columns:

80 column emulation is activated from the keyboard by typing CTRL-A and hitting RESET. To return to 40 columns, type a key without CTRL and hit RESET. Don't try this if running the OS in RAM. This technique should work with BASIC, DOS, and most programs that behave nicely when you hit RESET. Other ways to turn on 80 columns are 'X=USR(49152)' from BASIC or 'JSR \$C001' from assembly language.

### Installing the resident ramdisk handlers:

The resident Ramdisk handlers in OMNIVIEW XL/XE/256 allow you to use

the extra 64K RAM of the 130XE or the extra 192K RAM of the 800XL with the 256KXL upgrade as an ultra fast single density disk drive in conjunction with any DOS which uses standard SIO calls (\$E459 and \$E453) and does not hide itself underneath the cartridge or OS (e.g. ATARI 2.0S, MYDOS, SMARTDOS, etc.). In addition you will find it possible to use the Ramdisk with boot programs like Letter Perfect and Data Perfect.

The easiest method to activate the ramdisk is to load (with the binary load function of DOS) one the files on the OmniWriter disk called INSTALL1 through INSTALL4. These will install the ramdisk as drive 1 to 4 respectively. You could rename one of the files to AUTORUN.SYS if you want the ramdisk installed automatically on bootup. Once the ramdisk is installed it must first be formatted (as you would any new disk) before it can be used. Also, if it is to be used as drive 1 then the DOS files must be written to it.

Another method is as follows: Type a number (1 to 8) corresponding to the drive number you wish to assign the Ramdisk, hold down the START key, and press RESET. If you do not hit a number prior pressing START/RESET, drive 1 will be assumed. In Letter/Data Perfect this combination is also used to change the screen colors, so assign the Ramdisk as drive 3 if you do not wish to use it in these environments.

For example, in BASIC:

- 1) Type DOS to go to DOS. Now type 2 and START/RESET to install the Ramdisk as drive 2.
- 2) Since you are now back in BASIC, go to DOS again and format and write DOS files to drive 2.
- 3) Now type 1 and START/RESET to install the Ramdisk as drive 1 if you so desire.

Or from assembly language:

```
LDA #2 (drive #)
STA $94
LDA $D301
AND #7F
STA $D301
JSR $CFAE
LDA $D301
ORA #80
STA $D301
RTS
```

On a 130XE with OMNIVIEW XL/XE there is only enough room for a 512 sector ramdisk. An attempt to use more than 512 sectors of the Ramdisk will result in an I/O ERROR. If you have OMNIVIEW 256 in a machine with at least 256K of memory then you can have up to 1512 sectors in your ramdisk, depending on the DOS. If you want more than 720 sectors then you must tell your DOS that the ramdisk is double sided. The ramdisk will not work double density.

# OMNIVIEW 400/800 Features

## Turning on 80 columns:

If you are not using one of the programs that activates 80 columns automatically, you can do so from the keyboard by holding down the START and SELECT switches and then very briefly pressing the OPTION switch. Then press the BREAK key to clear out the line buffer. It is important that you hold down the OPTION switch as briefly as possible (more of a tap actually). This is because these three switches are monitored during the vertical blank interrupt (VBI). If the VBI detects the closure of all three switches, it does a JSR \$C001 to initialize OMNIVIEW. Holding the switches down longer than one VBI causes the VBI to be reentered, pushing more stuff on the stack and eventually causing the stack to overflow. A great way to lock up your computer! Other ways to turn on 80 columns are 'X=USR(49152)' from BASIC or 'JSR \$C001' from assembly language.

## Installing the ramdisk handlers:

If you have an AXLON compatible 128K board in your system then you can use the ramdisk handlers in OMNIVIEW to force almost any DOS to recognize it as a single density ramdisk.

The easiest way to activate the ramdisk is as follows:

- 1) Go into a DOS that uses the ATARI screen editor (that is, the cursor editing controls are active). If you are using a DOS that responds to a single keystroke you must get into a mode where you are entering a line of text, like when typing a filespec during the directory command.
- 2) Hold down the START key and type control-, (control-comma). That will install the ramdisk as drive 1.
- 3) If you wish the ramdisk to be something other than drive 1, type the drive #, put the cursor back on the number, and then type control-.,
- 4) Hit the BREAK key to abort the DOS command.
- 5) Format the ramdisk with the 'i' command of DOS.
- 6) If the ramdisk is drive 1 then you must also write DOS files to it with the 'H' command of DOS.

An even easier way if you also have the 8K OMNIMON in the system is to use it to install the handlers. Then switch back to OMNIVIEW and the ramdisk will stay active. The installation can also be accomplished from assembly language by storing the drive # in location \$94 and doing a JSR \$CF24.

## Reversing the screen colors:

You can reverse the screen colors by holding down START and hitting RESET. Alternatively, you can hold down START during the entire boot process. However, you must wait until after the boot process has started before pressing it, otherwise the OS will try to boot the cassette recorder.

### 400/800 compatibility:

This feature ameliorates the worst problem associated with the 800XL and 130XE, namely that they won't run so much of the older ATARI software! It does this by having an ultra compatible 400/800 style OS which will copy itself into RAM, freeing up the \$C000 page. There are still some highly protected games which, as a part of their misguided protection schemes (e.g., Electronic Arts), refuse to run if your machine's OS is enhanced in any way. That is their problem. Don't call us about their unethical practices. Complain instead to the publisher of the program.

To copy the OS into RAM (from \$D800 to \$FFFF), hold down the SELECT key while pressing RESET. To restore the OS to ROM, press RESET by itself. From this point on, the RAM version of the OS will be preserved, even if you switch the OS to ROM and back to RAM. Thus, any changes you may make to the OS in RAM remain in effect as long as you do not power down. In addition, if you hold down the SELECT key during powerup, the OS will be copied into RAM and it will stay in RAM even if you press RESET. Please note that the 80 column emulation is not available when running the OS out of RAM.

### Basic Activation with OPTION:

The meaning of the OPTION key during powerup is just opposite of the original OS: hold down the OPTION key to activate BASIC. This seems to be the preference of most people.

### Scroll control (CTRL-1):

One other convenience is that CTRL-1 has been replaced by the HELP key. Press the HELP key once to stop scrolling and again to start scrolling.

### Coldstart from the keyboard:

Press HELP and hit RESET. This is the same as powering up except that the contents of the ramdisk are preserved. It is also healthier for your computer than cycling power. However, watch out because HELP is also used to control scrolling. If you have just controlled scrolling with HELP and you want to do a warmstart, be sure to hit some other key before you hit RESET.

### Changing screen colors:

It is possible to switch the screen colors in the 80 column mode by holding down the START key while typing a letter. If this does not work (as in Letter Perfect), try holding down the START key while pressing RESET. However, since this combination is also used to install the Ramdisk handlers, read the section on the ramdisk before using this second technique.



## Technical Details about OMNIVIEW

OMNIVIEW uses ANTIC mode F (BASIC GR. 8), which gives you a resolution of 320 by 192 pixels. If you use a 4 by 8 character cell, this gives you exactly 80 columns by 24 rows. One drawback to this scheme is that it uses \$1E00 bytes (almost 8K) of memory for the screen data. Here is a memory map of the screen data:

RAMTOP\*256           -> RAMTOP holds the number of pages of RAM  
RAMTOP\*256 - \$126   -> Unused  
RAMTOP\*256 - \$1F0   -> Beginning of display list (after screen data!)  
RAMTOP\*256 - \$1FF0  -> Beginning of screen data (SAVMSC)  
RAMTOP\*256 - \$2001  -> Last byte of free RAM (MEMTOP)

Another drawback is that the format of the screen data is not nearly so convenient as BASIC GR. 0 (which is essentially stored as ATASCII). Each character must be translated to pixel data represented by bits in noncontiguous bytes in screen memory. Fortunately, you do not have to do this translation yourself. OMNIVIEW will do it for you.

There are basically two ways to write to the screen. The first is via the E: or S: screen editor. When you activate the 80 column mode, OMNIVIEW initializes the 80 column screen and installs the 80 column E: and S: devices in the handler address table at \$31A in place of the 40 column devices. Afterwards, all CIO calls to E: and S: get vectored into OMNIVIEW. This includes OPEN, CLOSE, PUT BYTE and GET BYTE. (Yes, OMNIVIEW will even go read the pixel data and figure out what character it represents!) Since every effort was made to preserve the meanings of the E: variables (ROWCRS, COLCRS, LMARGN, RMARGN, OLDCHR, etc.) even programs which manipulate them have a good chance of working in 80 columns. One difference, however, is that the logical line is only 80 characters long in 80 columns. All of this makes it easy to interface to the 80 column screen. However, there is a penalty. It is relatively slow.

This leads us to the second method of writing to the 80 column screen. There are some special hooks directly into the screen output routines of OMNIVIEW that allow a much faster screen update than is possible by going through CIO. The most important one is at \$CFBA (OUTCHJ). To use this subroutine you must first calculate the exact address within the screen data of the top row of pixels of the character cell you wish to write to. Do this with the following formula:  $ROWCRS * 240 + COLCRS / 2$ . Put this result in MLTTMP (\$66), COLCRS in the Y reg, the character to output in the A reg, and do a JSR OUTCHJ. This is exactly what OmniWriter does to update the screen in the blink of an eye. If you would like to learn more about 80 column programming, the OmniWriter source files are available for \$19.95 from CDY Consulting.

**Here is a memory map of the screen data area:**

RAMTOP\*256 ->RAMTOP HOLDS THE NUMBER OF PAGES OF RAM  
 RAMTOP\*256-\$126 ->FUTURE BUFFER FOR LAST LINE DELETED (LINBUF)  
 RAMTOP\*256-\$1F0 ->BEGINNING OF DISPLAY LIST  
 RAMTOP\*256-\$1FF0 ->BEGINNING OF DISPLAY DATA (SAVMSC)  
 RAMTOP\*256-\$2001 ->LAST BYTE OF FREE RAM (MEMTOP)

**Here are the definitions of OMNIVIEW XL/XE variables:**

DSTAT	\$4C	USED TO SAVE STATUS
TEMP	\$50	TEMPORARY REGISTER
HOLD1	\$51	TEMPORARY REGISTER
LMARGN	\$52	LEFT MARGIN (0-79)
RMARGN	\$53	RIGHT MARGIN (0-79)
ROWCRS	\$54	ROW CURSOR IS ON (0-23)
COLCRS	\$55	COLUMN CURSOR IS ON (0-79); DISCERNS BETWEEN ODD AND EVEN CHARS DURING SCREEN OUTPUT (OUTCHJ)
LFTMSK	\$56	INVERSE VIDEO MASK FOR EVEN COLUMNS
RGTMSK	\$57	INVERSE VIDEO MASK FOR ODD COLUMNS
SAVMSC	\$58	2 BYTE POINTER TO BEGINNING OF DISPLAY DATA
OLDCHR	\$5D	INTERNAL FORMAT OF CHARACTER UNDER CURSOR
OLDADR	\$5E	2 BYTE POINTER TO CURRENT CURSOR POSITION (ALSO SEE COLCRS) WITHIN SCREEN DATA
ADRESS	\$64	2 BYTE POINTER TO CURRENT CHARACTER
MLTTMP	\$66	2 BYTE POINTER WHERE NEXT CHAR WILL BE OUTPUT (ALSO SEE COLCRS) WITHIN SCREEN DATA
RAMTOP	\$6A	NUMBER OF 256 BYTE PAGES OF RAM AVAILABLE
BUFcnt	\$6B	BUFFER COUNT DURING E: GET CHAR
BUFSR	\$6C	RETAINS START OF LOGICAL LINE DURING E: GET CHAR (ROW/COL)
DILIST	\$70	TEMP 2 BYTE PTR USED DURING GENERATION OF DISPLAY LIST
TEMP1	\$79	TEMPORARY REGISTER
INSDAT	\$7D	TEMPORARY REGISTER
LINBUF	\$7E	2 BYTE POINTER TO A LINE BUFFER JUST PAST DISPLAY LIST
GPRIOR	\$26F	PRIORITY SELECTION REGISTER
HOLD 3	\$29D	TEMPORARY REGISTER
ESCFLG	\$2A2	ESCAPE FLAG; USED TO DISPLAY CTRL CODES
TMPROW	\$2B8	TEMPORARY STORAGE FOR ROWCRS
SCRFLG	\$2BB	SCROLL FLAG; SET IF SCROLL OCCURRED
SHFLOK	\$2BE	FLAG FOR SHIFT AND CONTROL KEYS
BOTSCR	\$2BF	THE NUMBER OF TEXT ROWS AVAILABLE FOR PRINTING
MEMTOP	\$2E5	2 BYTE POINTER TO THE TOP OF FREE MEMORY
CRSINH	\$2F0	CURSOR INHIBIT FLAG; NON-ZERO TURNS CURSOR OFF
ATACHR	\$2FB	LAST ATASCII CHARACTER READ OR WRITTEN
CH	\$2FC	INTERNAL HARDWARE VALUE OF THE LAST KEY PRESSED
DSPFLG	\$2FE	DISPLAY FLAG; NON-ZERO WILL DISPLAY CTRL CHARS
SSFLAG	\$2FF	START/STOP FLAG; NON-ZERO WILL SUSPEND SCREEN OUTPUT

**Use of OMNIVIEW XL/XE WITH LJK'S Letter Perfect**

Any version of Letter Perfect which supports the Bit-3 board can, with the appropriate patches, be made to work with OMNIVIEW XE/XL. Some special fixed entry points were added to OMNIVIEW XE/XL to provide the necessary hooks and these can be used in your own software if needed:

CURSNJ SCFB1 TURN ON CURSOR @ OLDADR (\$5E)  
 CURSFJ SCFB4 TURN OFF CURSOR @ OLDADR (\$5E)  
 DELRTJ SCFB7 CLEAR TO EOL BASED UPON MLTIMP (\$66) AND COL # IN REG Y  
 OUTCHJ SCFBA OUTPUT CHAR IN ACC TO SCREEN @ MLTIMP (\$66) AND COLCRS (\$55)  
 SCROLJ SCFBD SCROLL SCREEN UP  
 SCRLDJ SCFC0 SCROLL SCREEN DOWN

Here are the patches to the 80 column side of Letter Perfect Version 3.0. Use OMNIMON or any sector editor to modify a backup of the original disk (use and sector copier to make the backup). DO NOT MODIFY THE ORIGINAL DISK! For \$10.00, CDY will do the patches for you. Simply send a backup copy of the 80 column side of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting (214-235-2146).

**SECTOR \$2D BYTE \$30:**

WAS SEC NOW SD9

**SECTOR \$2D BYTE \$53:**

WAS	\$65	EA	48	0A	0A	0A	85	NOW	SEA	EA	85	64	A9	00	85	65
	\$64	68	4A	4A	4A	4A	85		S8A	48	20	86	25	68	AA	60

**SECTOR \$2D BYTE \$72:**

WAS	SA5	EA	69	04	29	7F	85	EA	NOW	S8A	48	20	BD	CF	68	AA	A5
	\$20	86	25	20	BF	25			S58	85	64	A5	59	85			

**SECTOR \$2E BYTE \$00:**

WAS	\$20	4B	25	4C	BF	25	A5	EA	NOW	\$65	4C	F7	25	BF	25	A2	06
	\$20	55	25	A9	0D	8D	80	D5		\$06	64	26	65	CA	D0	F9	A5
	SA5	64	8D	81	D5	A9	0C	8D		\$58	18	65	64	85	64	A5	59
	\$80	D5	A5	65	8D					\$65	65	85	65	60			

**SECTOR \$2E BYTE \$47:**

WAS	SA9	00	20	FF	25	C8	C0	50	NOW	S8A	48	20	B7	CF	68	AA	A0
	\$90	F3	60	A4	55	98	18	65		\$50	38	60	A4	55	98	4A	18
	\$64	85	66	A5	65	69	00	85		\$65	64	85	66	A5	65	69	00
	\$67	A9	13	8D	80	D5	A5	66		SD0	13	85	EA	98	48	8A	48
	\$8D	81	D5	A9	12	8D	80	D5		SA5	EA	20	BA	CF	EA	EA	EA
	SA5	67	8D	81	D5	A9	1F	8D		\$68	AA	68	A8	60	85	67	60
	\$80	D5	AD	80	D5	10	FB	60		\$20	BF	25	4C	4B	25	EA	60

**SECTOR \$2F BYTE \$00:**

WAS	\$48	78	68	8D	85	D5	20	F9	NOW	\$48	78	68	20	E1	25	28	60
	\$25	28	60	20	D2	25	A9	0F		\$25	28	60	20	D2	25	20	15
	\$8D	80	D5	A5	66	8D	81	D5		\$26	20	B1	CF	60	A5	66	85
	SA9	0E	8D	80	D5	A5	67	8D		\$5E	A5	67	85	5F	60	67	8D
	\$81	D5	A9	09	48	A9	0A	8D		\$81	D5	A9	09	20	B4	CF	60

**SECTOR \$2F BYTE \$40:**

WAS	SA2	10	8E	08	D5	CA	8E	80	NOW	\$20	01	C0	A5	58	85	9E	A6
	SD5	BD	CF	13	8D	81	D5	CA		\$59	CA	CA	86	9F	EA	EA	EA
	\$10	F4								SA2	FF						

**SECTOR \$2F BYTE \$72:**

WAS S20 86 25 NOW SEA EA EA

**OMNIVIEW XL/XE with LJK's Letter Perfect Version 3.2, 3.3**

Here are the patches to the 80 column side of Letter Perfect Version 3.2, 3.3. Use OMNIMONXL of any sector editor to modify a backup copy of the original disk (use any sector copier to make the backup). DO NOT MODIFY THE ORIGINAL DISK! For \$10.00, CDY will do the patches for you. Simply send a backup copy of the 80 column side of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting (214-235-2146)

**SECTOR \$2D BYTE \$39:**

WAS SEC

NOW SD9

**SECTOR \$2D BYTE \$5C:**

WAS \$65 EA 48 0A 0A 0A 0A 85  
\$64 68 4A 4A 4A 4A 85 65

NOW SEA EA 85 64 A9 00 85 65  
\$8A 48 20 8F 25 68 AA 60

**SECTOR \$2D BYTE \$7B:**

WAS SA5 EA 69 04 29

NOW \$8A 48 20 BD CF

**SECTOR \$2E BYTE \$00:**

WAS \$7F 85 EA  
\$20 8F 25 20 C8 25  
\$20 54 25 4C C8 25 A5 EA  
\$20 5E 25 A9 0D 8D 80 D5  
SA5 64 8D 81 D5 A9 0C 8D  
\$80 D5 A5 65 8D

NOW \$68 AA A5  
\$58 85 64 A5 59 85  
\$65 4C 00 26 BF 25 A2 06  
\$06 64 26 65 CA D0 F9 A5  
\$58 18 65 64 85 64 A5 59  
\$65 65 85 65 60

**SECTOR \$2E BYTE \$50:**

WAS SA9 00 20 08 26 C8 C0 50  
\$90 F3 60 A4 55 98 18 65  
\$64 85 66 A5 65 69 00 85  
\$67 A9 13 8D 80 D5 A5 66  
\$8D 81 D5 A9 12 8D 80 D5  
SA5 67 8D 81 D5 A9 1F 8D

NOW \$8A 48 20 B7 CF 68 AA A0  
\$50 38 60 A4 55 98 4A 18  
\$65 64 85 66 A5 65 69 00  
\$D0 13 85 EA 98 48 8A 48  
SA5 EA 20 BA CF EA EA EA  
\$68 AA 68 A8 60 85 67 60

**SECTOR \$2F BYTE \$00:**

WAS \$80 D5 AD 80 D5 10 FB 60 08  
\$48 78 68 8D 85 D5 20 02  
\$26 28 60 20 DB 25 A9 0F  
\$8D 80 D5 A5 66 8D 81 D5  
SA9 0E 8D 80 D5 A5 67 8D  
\$81 D5 A9 09 48 A9 0A 8D

NOW \$20 C8 25 4C 54 25 EA 60 08  
\$48 78 68 20 EA 25 28 60  
\$25 28 60 20 DB 25 20 1E  
\$26 20 B1 CF 60 A5 66 85  
\$5E A5 67 85 5F 60 67 8D  
\$81 D5 A9 09 20 B4 CF 60

**SECTOR \$2F BYTE \$49:**

WAS SA2 10 8E 08 D5 CA 8E 80  
SD5 BD CF 13 8D 81 D5 CA  
S10 F4

NOW \$20 01 C0 A5 58 85 9E A6  
\$59 CA CA 86 9F EA EA EA  
SA2 FF

**SECTOR \$2F BYTE \$7B:**

WAS \$20 8F 25

NOW SEA EA EA

**OMNIVIEW XL/XE with LJK's Letter Perfect Version 6.0 thru 6.5**

Here are the patches to Letter Perfect Version 6. +. Use OMNIMONXL or a sector editor to modify a backup copy of the original disk (use any sector copier to make the backup). DO NOT MODIFY THE ORIGINAL DISK! For \$10.00 CDY will do the patches for you. Simply send a backup copy of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting.

**SECTOR \$62 BYTE \$1A:**

WAS \$31 02 CA

NOW SE6 02 EA

**SECTOR \$63 BYTE \$0D:**

WAS \$65 CF 48 0A 0A 0A 0A 85  
\$64 68 4A 4A 4A 4A 85 65

NOW SEA EA 85 64 A9 00 85 65  
\$8A 48 20 C6 08 68 AA 60

**BYTE \$2C:**

WAS SA5 CF 69 04 29 7F 85 CF  
\$20 C6 08 20 F2 07 20 85  
\$07 4C

NOW \$8A 48 20 BD CF 68 AA A5  
\$58 85 64 A5 59 85 65 4C  
SE0 07

**BYTE \$42:**

WAS SA9 13 8D 80 D5 98 18 65  
\$64 85 66 8D 81 D5 A9 12  
\$8D 80 D5 A5 65 69 00 85  
\$67 8D 81 D5 A9 1F 8D 80  
SD5 AD 80 D5 10 FB

NOW \$98 4A 18 65 64 85 66 A5  
\$65 69 00 85 67 60 85 CF  
\$98 48 8A 48 A5 CF 20 BA  
SCF 68 AA 68 A8 60 20 F2  
\$07 4C 85 07 EA EA

**BYTE \$78: WAS \$00**

NOW \$20

**SECTOR \$64 BYTE \$66:**

WAS \$8D 85 D5

NOW \$20 D0 07

**BYTE \$6A: WAS \$4C**

NOW \$60

**BYTE \$70:**

WAS SA0 0F 8C 80 D5 A5 66 8D  
\$81 D5 88 8C 80 D5 A5 67

NOW \$20 77 08 20 B1 CF 60 A5  
\$66 85 5E A5 67 85 5F 60

**SECTOR \$65 BYTE \$0C:**

WAS SA9 A0 A0 0A

NOW \$20 B4 CF 60

**BYTE \$17:**

WAS SA2 10 8E 08 D5 A2 0D 8E  
\$80 D5 BD 02 08 8D 81 D5  
SCA 10 F4 E8

NOW \$20 01 C0 A9 01 85 0C A9  
SC0 85 0D EA EA EA EA EA  
SEA EA A2 00

**BYTE \$3D:**

WAS \$20 C6 08

NOW SEA EA EA

**BYTE \$46:**

WAS \$20 E3 07 29 20 F0 F9 A0  
\$0C 8C 80 D5 A5 CF 20 8F  
\$07 8D 81 D5 C8 8C 80

NOW SA2 06 06 64 26 65 CA D0  
SF9 A5 58 18 65 64 85 64  
SA5 59 65 65 85 65 60

**SECTOR \$6A BYTE \$4D:**

WAS \$0D 84 0C

NOW \$0B 84 0A

**SECTOR \$79 BYTE \$48:**

WAS \$42 69 74 20 33 20 66 75  
\$6C 6C 2D 76 69 65 77 20  
\$38 30

NOW \$4F 4D 4E 49 56 49 45 57  
\$20 38 30 20 43 6F 6C 75  
\$6D 6E

**BYTE \$6B:**

WAS \$63 6F 6C 75 6D 6E

NOW \$52 2E 49 2E 50 2E

## OMNIVIEW XL/XE with Data Perfect Version 2.0 thru 2.5

Here are the patches to 80 column Data Perfect. Use OMNIMONXL or any sector editor to modify a backup copy of the original disk (use any sector copier to make the backup). DO NOT MODIFY THE ORIGINAL DISK! For \$10.00 CDY will do the patches for you. Simply send a backup copy of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting.

### SECTOR \$02 BYTE \$06:

WAS \$31

NOW \$E6

### SECTOR \$04 BYTE \$02:

WAS \$30

NOW \$E5

BYTE \$07:

WAS \$31

NOW \$E6

### SECTOR \$05 BYTE \$1E:

WAS \$42 69 74 20 33 00 33 3E  
 \$20 20 41 75 73 74 69 6E  
 \$20 46 72 61 6E 6B 6C 69  
 \$6E

NOW \$4F 4D 4E 49 56 49 45 57  
 \$20 38 30 00 33 3E 20 20  
 \$41 75 73 74 69 6E 20 38  
 \$30

### SECTOR \$09 BYTE \$46:

WAS \$30

NOW \$E5

BYTE \$4B

WAS \$31

NOW \$E6

### SECTOR \$8F BYTE \$57:

WAS \$48 4A 4A 4A 4A 85 E1 68  
 \$0A 0A 0A 0A 85 E0  
 BYTE \$6F:

NOW \$85 E0 A9 00 85 E1 98 48  
 \$20 6D 0D 68 A8 60

WAS \$8D 85 D5 20 67 0D

NOW \$20 54 0D EA EA EA

### SECTOR \$90 BYTE \$51:

WAS \$00

NOW \$20

BYTE \$59:

WAS \$F8 60 20 44 0D AD 83 D5

NOW \$F6 60 20 44 0D BD 80 04

BYTE \$65:

WAS \$A0 0F 8C 80 D5 A5 66 8D  
 \$81 D5 88 8C

NOW \$A5 66 85 5E A5 67 85 5F  
 \$20 B1 CF 60

BYTE \$7B:

WAS \$A9 20 A0 0A

NOW \$20 B4 CF 60

### SECTOR \$91 BYTE \$0D:

WAS \$7B

NOW \$83

BYTE \$46:

WAS \$A9 13 8D 80 D5 98 18 65  
 \$E0 85 66 8D 81 D5 A9 12  
 \$8D 80 E5 A5 E1 69 00 85  
 \$67 8D 81 D5 A9 1F

NOW \$98 4A 18 65 E0 85 66 A5  
 \$E1 69 00 85 67 60 85 56  
 \$98 48 8A 48 A5 56 20 BA  
 \$CF 68 AA 68 A8 60

BYTE \$6D:

WAS \$70 50 5B 39 19 04 18 18  
 \$78 09 20 09 00 00 A2 10  
 \$8E 08 D5

NOW \$A0 06 06 E0 26 E1 88 D0  
 \$F9 A5 58 65 E0 85 E0 A5  
 \$59 65 E1

### SECTOR \$92 BYTE \$00:

WAS \$CA 8E 80 D5 BD 6D 0D 8D  
 \$81 D5 CA 10 F4

NOW \$85 E1 60 20 01 CO EA EA  
 \$EA EA EA EA EA

## USE of OMNIVIEW XL/XE with ATR8000

OMNIVIEW XL/XE has a built in terminal emulator for use with the ATR8000 which provides a serial interface for communication with the ATR and most of the standard cursor controls necessary for operation with CPM programs. The terminal emulator which will be referred to as 'ATRMON' from this point on, can be called up at any time and it is even possible to switch back and forth between the ATARI and CPM environments.

### Turning on ATRMON

First of all you must activate the 80 column OMNIVIEW XL/XE screen editor (e.g. with CONTROL-A RESET). Then hold down the START, SELECT, and OPTION buttons and type any letter on the keyboard. You should hear the drive(s) reset and the ATRMON header should appear after a couple of seconds. Now put in your CPM system disk and type 'B(return)' to boot up CPM. While ATRMON is active, the START button will allow you to switch screen colors. (By the way, even in ATARI mode you can switch screen colors by holding down the START button and typing any key. This also holds true of powerup, if you press the START button after the disk boot process has begun and hold it down until the boot is finished. This allows you to change the screen colors of Letter Perfect.)

### Leaving ATRMON

Leave ATRMON in almost the same way you entered it, i.e., by holding down the START, SELECT, and OPTION buttons, but this time it is not necessary to type another key. You will then see the command 'GOATARI' appear on the screen. This is to fetch the extrinsic command 'GOATARI' which is used to reset the ATR from CPM so that the drives can once more be accessed in the ATARI environment. To create this file, use DDT as follow:

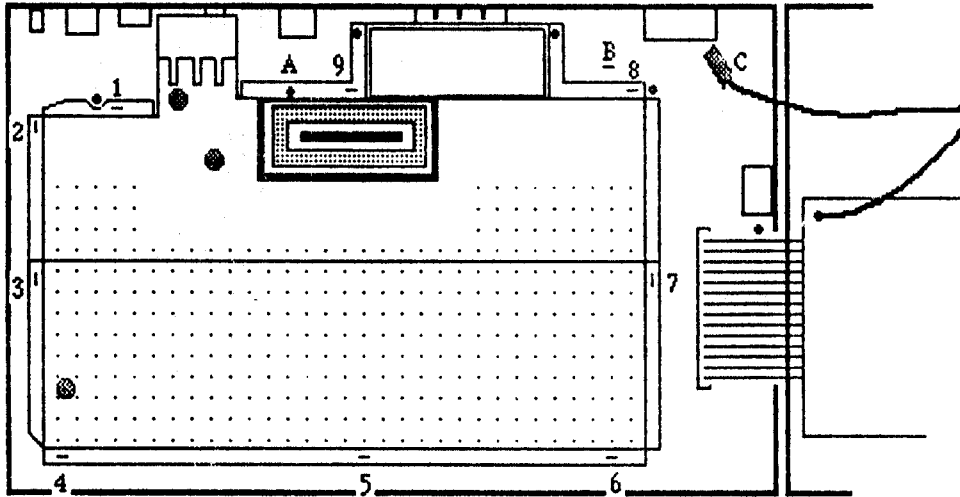
- 1) Under CPM, insert a disk with DDT on it and type 'DDT(return)' to enter DDT.
- 2) Type 'A100(return) JMP 0F00(return)(return) GO'
- 3) Back at the command level, type 'SAVE 1 GOATARI.COM(return)'

The short file 'GOATARI.COM' will have to be on any CPM disk from which you might want to return to the ATARI environment. The alternative is to reach behind the ATR and reset it whenever you return to the ATARI environment.

# RAMROD-XL Installation Instructions

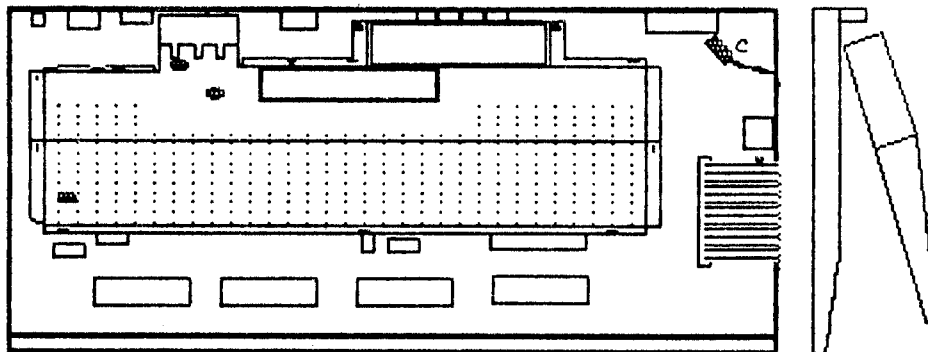
**Tools Required:** Crosspoint screwdriver, flat blade screwdriver, pliers, drill

- 1) Turn the computer upside down and remove the six crosspoint screws holding the case together.
- 2) Turn the computer upright and lift the top half of the case from the left, pivoting on the right edge, and lay it upside down to the right of the bottom half as shown below. You will need to pull off the spadelug connector C from B, but leave the keyboard cable connected for now.

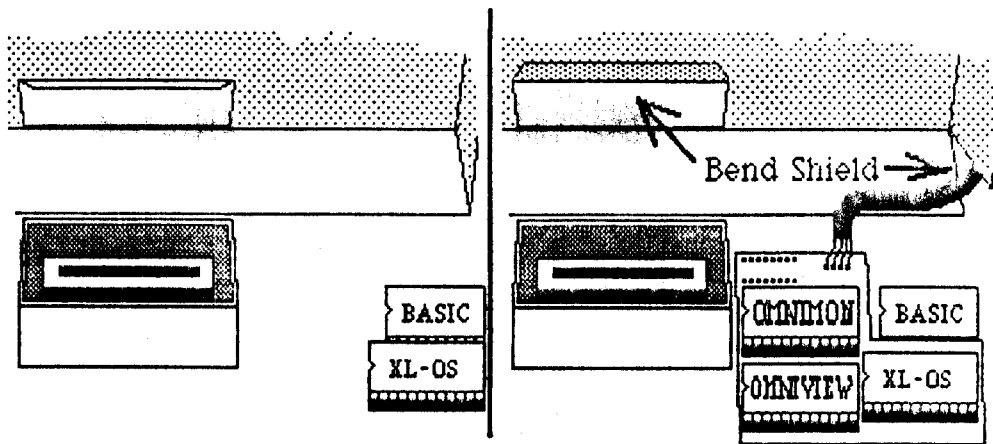


- 3) Now we wish to gain access to the area underneath the metal shield. If your computer has a single screw (A) and tabs around the edge (1-9) holding the shield down, go to 3A. If there are screws (with nuts) holding the shield down, go to 3B.

3A) Simply remove the screw and straighten the tabs so that you can lift the shield from the front, pivoting about 30 degrees on the remaining two screws at the back. This will bend the two metal tabs at the back slightly but this is of little consequence (see diagram below). Go to step 4.



- 3B) You will need to remove the motherboard from the bottom half of the case. In this case you will probably want to disconnect the keyboard cable by gently pulling it out of the connector on the motherboard. Remove the remaining screws holding the motherboard to the case (near 1, near 8 and between the joystick ports) and remove it by lifting from the left side and prying the case around the joystick ports on the right. It is a tight fit but it should pop out. Once the motherboard is free, you can remove the nuts and screws holding the shield to the motherboard. It is recommended that you leave the two at the back on either side of the expansion port. In this way you can lift the shield from the front to about a 30 degree angle, bending the back tabs slightly (see the diagram above).
- 4) Now you will need to modify the shield slightly. Refer to the diagram at the top of the next page while doing these modifications. First, use broad pliers (not needle nose) to bend the flap at the front of the cartridge slot up flat against the underside of the shield. This flap will otherwise interfere with the RAMROD-XL. Next, bend out the right side toward the back to create a 1/4 inch gap. You can do this easily with your fingers.



- 5) Now you are ready to install the RAMROD-XL. Refer to the diagram above. First locate the XL-OS chip, a 28 pin chip about 2 inches to the right of the cartridge slot. Remove it by inserting the flat screwdriver between the chip and the socket and gently prying and rotating the screwdriver.
- 6) Insert the XL-OS chip you just removed into the RAMROD-XL board in the indicated socket. Make careful note of the orientation of the chip, otherwise you may burn it up!
- 7) If you purchased OMNIVIEW also, plug it into the indicated socket if it is not already there.
- 8) Plug the RAMROD-XL into the empty OS socket as indicated in the diagram above. Route the cable through the gap in the corner of the shield.
- 9) If you wish, you can do a preliminary test by applying power to the motherboard. With the RAMROD-XL switch in the center position, the screen should come up with the READY prompt of BASIC. If this does not work, check to see that the RAMROD-XL board is seated well in the socket on the OS board.
- 10) Reinstall the shield by securing it to the motherboard with the metal tabs and/or screws.
- 11) If you had to remove the motherboard from the bottom of the case, pop it back into place and secure it with the screws. Likewise, carefully insert the keyboard cable back into the connector on the motherboard by using both hands to gently push it in.
- 12) You will probably want to mount the switch in the back righthand corner of the case just to the right of the peripheral connector. Drill an appropriate size hole and mount the switch.
- 13) Complete the installation by resecuring the top of the case with the six screws.

## Testing the RAMROD-XL

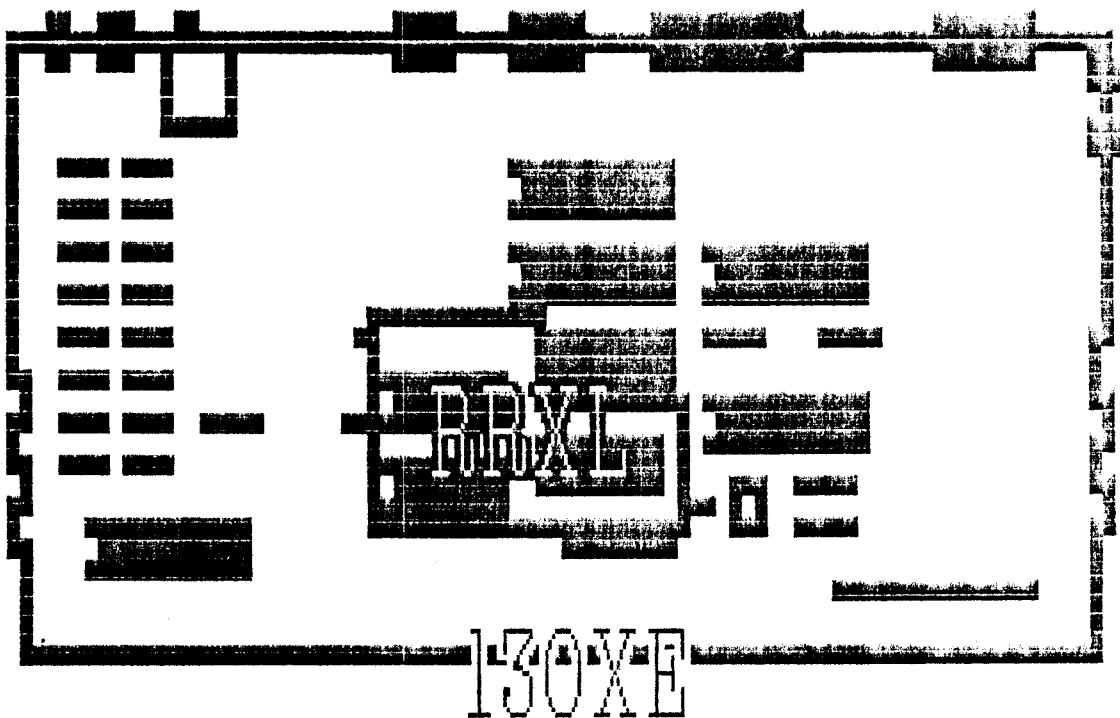
- 1) Power up the computer with the RAMROD-XL switch in the center position. If you do not get a READY prompt then go back and check the installation. Otherwise, hold down SELECT and press RESET. This should take you into OMNIMONXL indicating the OSNXL/OMNIMONXL is active.
- 2) Flip the toggle switch to another position and press RESET. If you get a READY prompt, type 'B.(RETURN)'. This should take you into the diagnostic routines of OSXL. Otherwise, this position should yield a blank screen (if that socket is blank) or the memo pad (if that socket has OSNXL/OMNIVIEW).
- 3) Once you have determined which switch position corresponds to which OS, you might want to label these positions next to the switch.

For the operation of OMNIMONXL and OMNIVIEWXL, refer to their user's manuals. It should be noted that all three sockets of RAMROD-XL are identical, so that any OS could go in any socket. Also, there are pads for a 16 pin IC for you hackers to do with what you want. If you have any questions or encounter problems during the installation, call Newell Industries at 214-423-1781 (no collect calls accepted) and we will be glad to assist you.

## INSTALLATION INSTRUCTIONS RAMROD XL IN 130XE

Remove the four screws from the bottom of the computer. Turn the computer upright and lift the top cover off. Lift the keyboard up slowly and unplug from the motherboard. Remove the RF shield top half. This may have tabs or screws. Remove the screws securing the motherboard to the bottom case and lift the motherboard out of the case. Locate the 28 pin operating system chip (there is only one 28 pin chip) close to the center of the motherboard. Unsolder and remove this chip using caution not to damage it. (This should be done by someone that has soldering experience) Install the RAMROD XL board into the now empty 28 pin pad on the motherboard and solder. You may want to trim the excess socket pins off of the bottom of the RAMROD XL board. DO NOT trim the header leads. The RAMROD XL board should be installed so that the reverse 'L' is facing the rear of the computer. If desired, install the XE OS chip in one of the sockets of the RAMROD XL board. The notch in the chip should face the left side of the computer. The RAMROD XL board should fit as far into the motherboard as possible to allow clearance for the RF shield. If the 40 pin IC beside the OS is in a socket, then you must remove this socket and solder this IC directly to the motherboard for the Ramrod XL to have clearance to mount directly to the motherboard. You may use a socket to install The Ramrod XL, but the clearance between the top of the Ramrod XL and the RF shield will be critical and we do not recomend this method.

Before reinstalling the motherboard, using a suitable tool, cut or break off the plastic post that would protrude through the motherboard and hit the RAMROD XL. Although this looks to be a support for the keyboard, you will notice that it does not support anything. Determine where to mount the switch and drill a suitable hole for it. Make sure that the cable will reach the location you have chosen once the RF shield is in place. Assemble the computer and test.



## RAMROD XL 2 INSTALLATION NOTES

Use the RAMROD-XL installation instructions included, with the following exceptions.

1. ITEM 9. change "the center position" to "proper position".

### TESTING NOTES

Disregard the RAMROD-XL testing instructions included, with the following exceptions.

1. ITEM 3.

## RAMROD XL UPDATES

### SOCKETS;

With the lowering of price of the 800 XL computers, it has been brought to our attention that some of the recently manufactured computers do not have sockets for some or all of the IC's. The chips are soldered directly to the board. If this is the case with your computer, you will have to remove the operating system (OS) chip to install the Ramrod XL. This should be done using a heat sink on the IC, and a solder sucker to remove the solder. After removal of the OS IC, you may either install a socket in which to install the Ramrod XL, or solder the Ramrod XL directly to the board. You will have better reliability soldering the Ramrod XL directly to the board, but you lose the flexibility of being able to remove it easily. In either case, this should be accomplished by someone with good soldering experience.

You may want to back up your XL OS. Contact Newell Industries for a backup copy, or use the information below to make your own backup.

### THE XL OPERATING SYSTEM;

The XL OS chip contains 16K of read only memory (ROM), addressed in the rom from 0000-3FFF (hex). The OS is located as follows.

ROM ADDRESS	COMPUTER ADDRESS	FUNCTION
0000-0FFF	C000-CFFF	OS
1000-17FF	5000-57FF	Diagnostic (see note)
1800-1FFF	D800-DFFF	Floating Point Routines
2000-3FFF	E000-FFFF	OS

### THE OSNXL OPERATING SYSTEM;

ROM ADDRESS	COMPUTER ADDRESS	FUNCTION
0000-0FFF	C000-CFFF	Omnimon
1000-17FF	5000-57FF	Omnimon (see note)
1800-1FFF	D800-DFFF	Fastchip Floating Point Routines
2000-3FFF	E000-FFFF	OS

NOTE: This portion of the rom is only visible to the computer when bit 7 of address \$D301 is 0. When this occurs, this portion of the OS rom is mapped over the ram at location \$5000.