

# AUTOFORM<sup>®</sup> 3D OFFLINE PROGRAMMING SYSTEM

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AN OPERATION SUPPLEMENT MANUAL FOR THE

**CINNATI AUTOFORM<sup>®</sup>  
CNC FORMING CENTER  
3D GRAPHICS SOFTWARE**

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**CINNATI**

CINNATI INCORPORATED  
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# AUTOFORM 3D OFFLINE PROGRAMMING SYSTEM

Thank you for purchasing the AUTOFORM 3D Offline Programming System. Please read the following before attempting to install the software.

This manual is intended to be a supplement to the AUTOFORM Operation and Maintenance Manual, EM-408. It is suggested that you read and understand the Operation and Maintenance Manual prior to reading this supplement. This supplement will explain differences between the Machine Control and the Offline Programming Software.

## SYSTEM REQUIREMENTS

System requirements for this software are as follows:

- ◆ 80386, 80486, Pentium and later PC's that are compatible with the three industry standard architectures ( IBM PC AT, IBM PS/2 Micro Channel, or EISA - Extended Industry Standard Architecture. MINIMUM RECOMMENDED SYSTEM IS A 50MHZ 80486.
- ◆ VGA video display board using 16 color, 640 x 480 video mode. Color VGA monitor or better.
- ◆ Floating point co-processor is required.
- ◆ Hard drive with minimum of 5 Meg free space
- ◆ 4 Meg of extended memory, 8 recommended.
- ◆ 3.5" HD 1.44 Meg floppy drive
- ◆ Mouse, trackball or other type of pointing device.

The AUTOFORM 3D Offline software is a 32-bit extended DOS application. It will run under DOS or in a DOS window under Windows 3.x, Windows 95, Windows NT or OS/2.

This software requires MS-DOS 5.0 or higher. If you use Windows, version 3.0 or higher is required. If you use Windows NT, version 3.1 or higher is required. The software will also run under Windows 95. If you use OS/2, version 2.0 or higher is required.

This software utilizes extended memory, which is memory in the PC located above the conventional 640k. If you are only running under DOS, an extended memory manager is required to access any memory above 640k. If you are running Windows, a memory manager is already provided. The following memory manager products are compatible with this software. Older versions may not be compatible.

QEMM 4.1 or later (QuarterDeck)

386MAX 4.02 or later (Qualitus)

CEMM 4.02 or later (COMPAQ)

EMM 386 (Microsoft Windows 3.0 or later, MS-DOS 5.0 or later)

## INTRODUCTION

The Offline Programmer will function almost identically to the AUTOFORM Machine Control. This will make the transition to offline programming easy. For more information about its operation, consult the AUTOFORM Operation and Maintenance Manual, EM-408, SECTIONs 7 and 8, and the AUTOFORM 3D Graphics Software Supplement Manual, EM-428. Also consult the Offline Programmers instant help feature (press the INS key) while in any screen for helpful tips. A keyboard quick reference and customer support number is available when the (INS) key is pressed in either page of the MAIN MENU.

## INSTALLATION AND RUNNING THE SOFTWARE

The Offline Programmer is "*COPY PROTECTED*". The protection scheme utilizes a hardware key which plugs into the parallel printer port on the back of the computer. If you have keys for other software products, they can be daisy-chained together. This key allows you to install the software on as many computers as needed, however, the key must be present for the software to run. If it is desired to run more than one copy of the software, additional keys can be purchased.

The key must be installed before running the software or a screen will appear indicating it has been disabled. The key must remain installed while the software is running. The key is checked periodically while running. If it is found to be removed, the screen will lock-up and a series of tones will be generated using the built-in speaker on your PC. Once the key is re-installed, the software will function normally. A complete description of the installation sequence follows.

To install the software, turn your computer ON. Make sure that the installation disk is write protected. Insert the installation disk into the 3.5" floppy drive.

If you are upgrading from a previous version of the software, it is not necessary to remove the previous version. Any user programs and parts will remain on your disk.

Use the following procedures depending on the operating system being used.

## DOS INSTALLATION

From the DOS prompt, type the following to select the floppy drive.

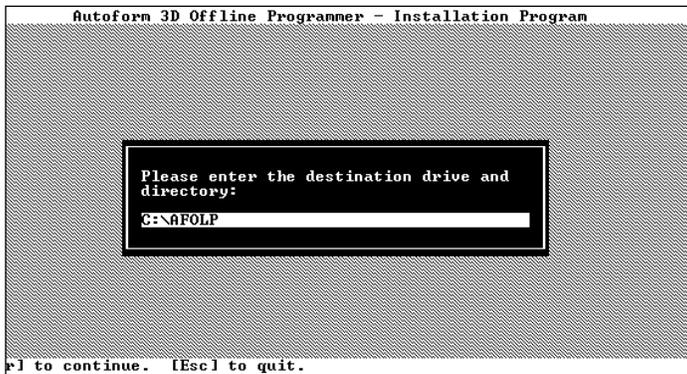
**A:** <return>

**Note:** If you have placed the disk in a drive other than 'A', substitute the drive letter you are using in all subsequent instructions.

Next type:

**install** <return>

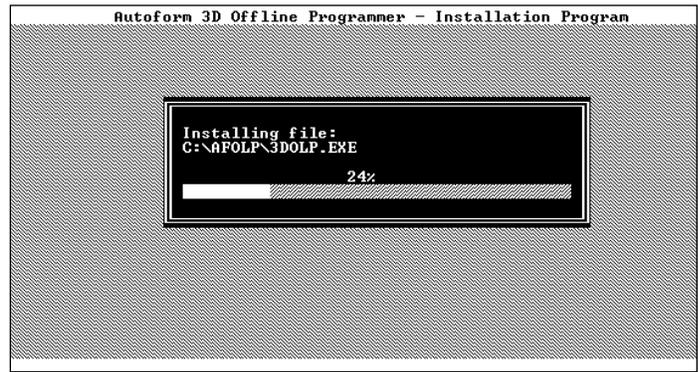
After a few seconds the following screen will appear.



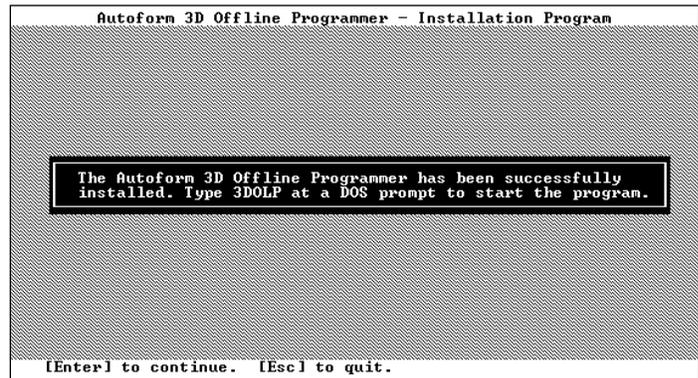
The installation program will default to the directory C:\AFOLP. If this is acceptable press RETURN. Otherwise, backspace over the default name and enter your own name. The name must begin with a drive letter and a colon.

**IMPORTANT:** If you are updating from an old version of the Offline Programmer, you should install the new version in the same directory that was previously used. If you want to keep using an older version, then pick a new name. Multiple copies of the software may reside on your hard drive.

After the destination directory has been entered, the installation program will copy all of the necessary files to the hard disk. The installation process will take approximately two to three minutes depending on the speed of your PC. A bar graph will be displayed to indicate the copy progress.



When the installation is complete, the following message will be displayed. Press the RETURN key to exit.



To run the software type:

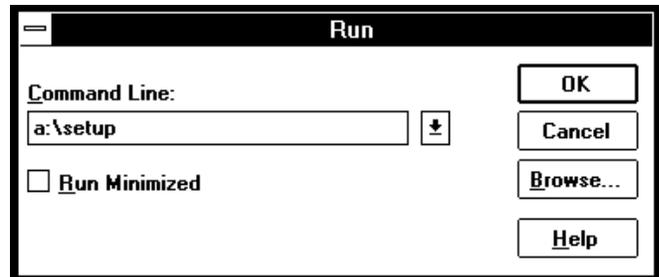
**3DOLP** <return>

at the DOS prompt of the C: drive.

## WINDOWS INSTALLATION (3.x, NT)

From the PROGRAM MANAGER or FILE MANAGER screen select the FILE MENU and select the option named RUN.

The following prompt will be displayed



Type the following:

**A: SETUP.EXE**

**Note:** If you have placed the disk in a drive other than 'A', substitute the drive letter you are using in all subsequent instructions.

Press the RETURN key to begin installation.

The screen will change as shown below.

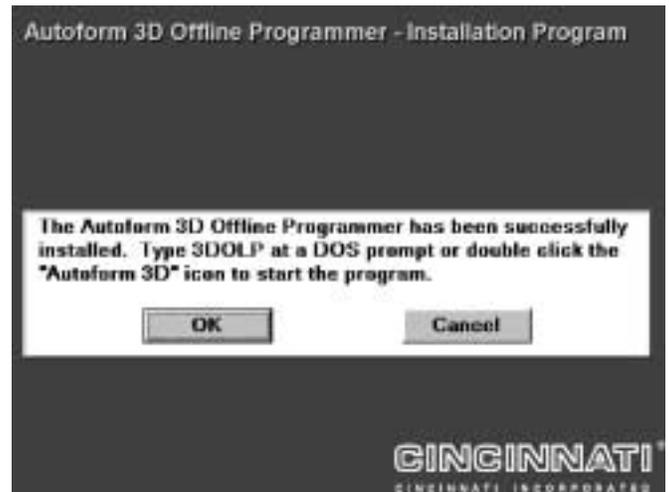


The installation program will default to the directory C:\AFOLP. If this is acceptable press RETURN. Otherwise, backspace over the default name and enter your own name. The name must begin with a drive letter and a colon.

After the destination directory has been entered, the installation program will copy all of the necessary files to the hard disk. The installation process will take approximately two to three minutes depending on the speed of your PC. A bar graph will be displayed to indicate the copy progress.



When the installation is complete, the following message will be displayed. Press the RETURN key to exit.



The installation program will automatically create a new Program Group called Cincinnati Incorporated. It will be displayed on the desktop as shown. Note the new program icon for AUTOFORM 3D.



To run the software, use the mouse to double click on the AUTOFORM 3D icon.

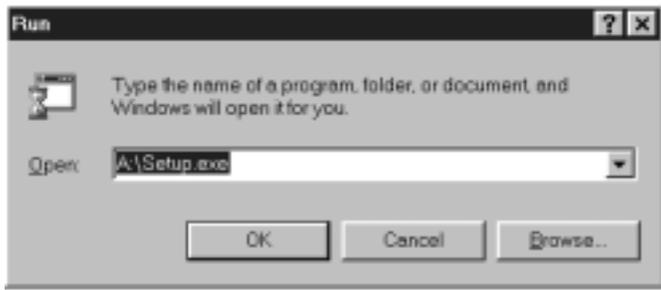
## WINDOWS NT

Windows NT has special protections in place to disallow direct access to the parallel port. Special drivers must be installed to allow this access and the user must be logged on to NT using the administrator ID and password.

To install the drivers when logged in to Windows NT as the administrator, just type 'HLINST.EXE' in a DOS window while in the Offline Programmer's working directory (usually AFOLP). The files 'HLVDD.DLL' and 'HARDLOCK.SYS' will be installed in the correct directories and the drivers will be started. Then simply reboot the system to allow the new drivers to take affect and ensure that the hardware key is firmly attached to the parallel port of the PC.

## WINDOWS 95 INSTALLATION

From the START menu at the lower left corner of the screen, select the FILE MENU and select the option named RUN.



Type the following:

**A: SETUP.EXE**

From this point the installation process is the same for normal Windows as described above.

To run the software, use the mouse to double click on the AUTOFORM 3D icon on the desktop or select the START menu, go under PROGRAMS and locate the Cincinnati Incorporated group and the AUTOFORM 3D selection.

You should not have to do anything additional to allow the Offline Programmer to run.

However, if the software still indicates that the hardware key is not in place after running the installation program and firmly attaching the hardware key, you should verify that the file 'HARDLOCK.VxD' is in either the \WINDOWS\SYSTEM directory or in the Offline Programmer's working directory (usually \AFOLP). This virtual device driver will allow Windows 95 to access the hardware key attached to the parallel port.

## KEYBOARD AND SOFTKEYS

"Softkey" is a term used for the nine buttons at the bottom of each screen on the Offline Programmer. The Offline Programmer uses function keys F1 - F9 for all softkey selections. By pressing the keypad's function key which corresponds to the softkey on the Offline Programmer screen, the associated action will be taken. The F10 function key is always used as the MAIN MENU softkey and will toggle between the MAIN MENU (1) screen and the MAIN MENU (2) screen. An example of a set of softkeys and their corresponding function keys is shown below.

Enter New Program	Job Data	Ram Data	Gage Data	Tooling Library	Program Storage	Management Data	Machine Configuration	
F1	F2	F3	F4	F5	F6	F7	F8	F9

- |                               |                                   |
|-------------------------------|-----------------------------------|
| <b>F1</b> - Enter New Program | <b>F6</b> - Program Storage       |
| <b>F2</b> - Job Data          | <b>F7</b> - Management Data       |
| <b>F3</b> - Ram Data          | <b>F8</b> - Machine Configuration |
| <b>F4</b> - Gage Data         | <b>F9</b> - (No Action)           |
| <b>F5</b> - Tooling Library   | <b>F10</b> - Main Menu (1 & 2)    |

PROGRAM: AUTOFORM CININNATI INCORPORATED OFFLINE PROGRAMMER 30 SEP 96							
ABC123 MAIN MENU 10:30 AM							
ENTER NEW PROGRAM JOB DATA RAM DATA GAGE DATA TOOLING LIBRARY PROGRAM STORAGE MANAGEMENT DATA MACHINE CONFIGURATION							
STATUS: Select a menu using the softkeys.							
Enter New Program	Job Data	Ram Data	Gage Data	Tooling Library	Program Storage	Management Data	Machine Configuration

PROGRAM: AUTOFORM CININNATI INCORPORATED OFFLINE PROGRAMMER 30 SEP 96							
MAIN MENU 10:33 AM							
HARD COPY SIMULATE CAD MENU FILE MENU FILE SERVER MODE							
STATUS: Select a menu using the softkeys.							
Hard Copy	Simulate	Cad Menu	File Menu	File Server Mode			

## FIELD KEYS

When a menu softkey is chosen, the MAIN MENU screen is erased and the new screen is shown. The data area of the screen will now be divided into "fields". Each field on the screen contains two parts: a name and a value. The field name is a fixed message which identifies what the value is used for.

Fields can be selected by using the ← → ↑ ↓ or the Home keys.

These keys allow the operator to move up, down, right and left on the screen relative to the current field. There is also a "home" field key which selects the top left field in the data area. The current field is always made to stand out by highlighted text. Field values which may not be changed by the operator are skipped over when moving around the screen with the field keys.

## POINTING DEVICE (MOUSE)

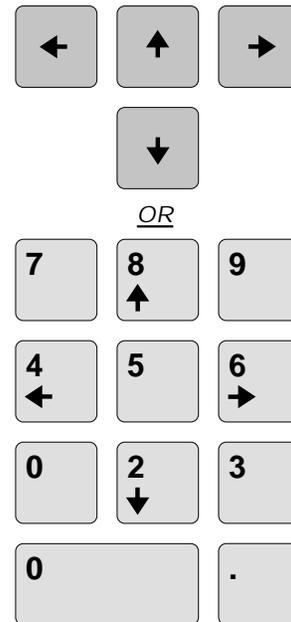
The mouse allows the user to pick the field on a screen to edit by moving the on screen pointer arrow to the desired field and then pressing the left button on the pointing device. Softkey functions may also be selected by positioning the pointing arrow anywhere in the softkey area and then pressing the left button. Pressing the button anywhere in the red Menu Title area is equivalent to pressing the Main Menu key on the front panel. Menu screens such as MAIN MENU or the CAD MENU allow selection of the item by picking the title of the menu using the pointer and button. This device will be referred to as the "Mouse".

## CHANGING A FIELD

The "value" in a field may contain a decimal number or a string of characters. The Offline Programmer uses two methods of editing a value. Many value fields have a fixed set of possible entries. For example, REVERSAL mode has Tonnage, Angle or Absolute Position. In these cases the softkeys will show all the choices and the operator will be instructed to make a selection by pressing one of the softkeys. When a value field can have many possible entries (decimal number, text string), the keypad is used to enter the value one letter or digit at a time.

The status line will display the value in the right corner. If the operator does not want to change the value shown in the status line, he can use the field keys to skip to another field. To enter a new value or change a value, the operator can use the keypad to type it in. An underline will move to the right as each letter or number is typed. The backspace key can be used to erase the entire value to start over.

To change one digit in a number value, pressing the ← or → arrow key while holding down the Control (CTRL) key will move the cursor over to the digit to be changed. Pressing a number key will type over the digit under the cursor.



When the operator has completed a value, pressing the ENTER key will transfer the value into the field. The field value is not changed until the ENTER key is pressed.

The BACKSPACE key (sometimes labeled DEL) on the AUTOFORM Offline Programmer is used to clear error messages from the display or to clear a numeric field when entering a value from the keypad.

Kermit communications software is integrated into the Offline Programmer software.

As long as the Offline Programmer software is running, it is always in "Server" mode and ready to handle file transfer requests initiated at the AUTOFORM Control. These transfers occur in the background and will have no affect on the operator at the PC. The operator can be writing new programs, designing a part using CAD, or simulating a bend sequence.

The Offline Programming software is capable of handling two serial ports at one time. This means that if your PC has two serial ports available, two different AUTOFORMs can be connected to the PC at one time. Both AUTOFORMs can send/receive files to the PC at the same time. Communications will be explained further in the "COMMUNICATING WITH A REMOTE AUTOFORM" section later.

## CONFIGURING THE OFFLINE PROGRAMMER

When the Offline Programmer is connected to the AUTOFORM Control for the first time, it has to be configured to have the same parameters as the machine. See "BACK-UP / RESTORE CONFIGURA-

TION" in the FILE UTILITY MENU (AUTOFORM Manual). The procedure for doing this is as follows:

1. From the AUTOFORM Control FILE MENU, press the "File Utility" softkey.
2. From the FILE UTILITY MENU, press the "Back-up/Restore Config" softkey.
3. Press the "Config to Remote" softkey.

The AUTOFORM control will indicate the status of the transfer.

**Note:** *You must now quit the Offline Programmer and restart it to have the new configuration values take effect.*

### **Note on multiple machines:**

The Offline Programmer may be used to connect to more than one AUTOFORM. It is possible to send files created on the Offline Programmer or AUTOFORM Control to any AUTOFORM. There is no distinction on the size of the machine for transferring files. The only difficulty that will be encountered is when a program which was written for a higher tonnage machine is run on a lower tonnage machine which does not have the capacity to bend the part. The same goes for a program which uses options not installed on another machine. In the case of tonnage, the AUTOFORM would simply not have enough capacity to bend the same part. Therefore, when multiple machines are involved personnel in charge of the system should decide several things:

1. If all machines are similar in size and options, use the configuration of the machine which is most common and store all files together.
2. If programs used on one machine will never be used on another because of size differences, etc., the configuration for each machine can be transferred as needed when writing a program for that machine.
3. Set-up different directories to store files for each machine or use naming conventions to distinguish programs and tools. See the section on changing storage paths for more information.
4. If none of these alternatives is acceptable, then use another PC and Offline Programmer for additional AUTOFORMS.

## **DIFFERENCES BETWEEN THE OFFLINE PROGRAMMER AND AUTOFORM CONTROL**

### **Keyboard & Softkeys**

The AUTOFORM Control has nine softkeys and the MAIN MENU button which are used to make operator selections. The Offline Programmer uses the Func-

tion Keys F1 - F9 for all softkey selections. The F10 function key is used as the MAIN MENU softkey. The mouse can be used to activate softkeys by clicking anywhere within the area or menu title.

The Field Keys on the AUTOFORM Control are used to highlight different fields on the screen. The equivalent keys on the Offline Programmer are the ← → ↑ ↓ keys. The mouse can be used to select whenever the field keys are active.

The CLR key on the AUTOFORM Control is used to clear error messages from the display or to clear a numeric field when entering a value from the keypad. The equivalent key on the Offline Programmer is the BACKSPACE (sometimes labeled DEL) key.

Cursor keys on the AUTOFORM Control are used for editing when entering numeric values or for the special instructions field of JOB DATA. The equivalent keys on the Offline Programmer are found by pressing the shift and control keys while holding down one of the ← → arrow keys or page down, page up keys.

The alpha-numeric keys on the AUTOFORM Control match those of the Offline Programmer keyboard. Note that the Control does not use lower case A-Z characters, so lower case is ignored on the Offline Programmer.

The ESC key on the Offline Programmer is used to exit the AUTOFORM Offline Programming System. When the ESC key is pressed the current program, tools, part, etc. are saved before leaving the Offline Programmer.

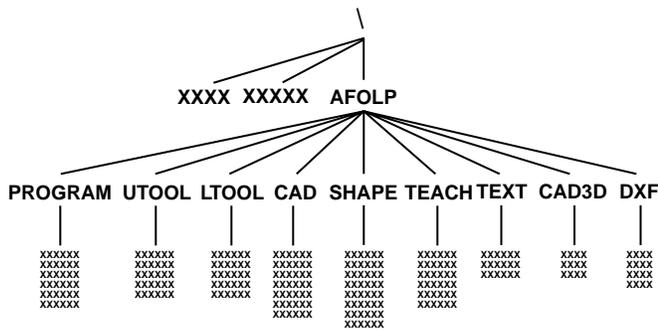
The INS key usually located on the numeric keypad of a standard keyboard is used as an "instant help" key. Pressing INS will clear the current screen and display a note explaining items on that screen. If the help message is longer than one screen, press the space bar to see the next screen. Pressing any key while viewing a help message will clear the screen and redraw the original screen.

If the INS key is pressed for the MAIN MENU Page 1, a software support address, a handy keyboard reference, will be displayed.

### **FILE STORAGE**

The AUTOFORM Control stores all files in non-volatile memory inside the Control. This is limited in size to 192,000 bytes. The Offline Programmer stores files on the hard disk drive unit used to install the software. The hard drive has much more storage available for files. Local floppy drives, as well as networked drives, may be used for file storage.

In order to organize this storage space, the operating system uses directories or paths to tell where files are located. The following diagram shows how the paths are used.



Paths are made up of a list of levels or directories which indicate the top level. The Offline Programmer makes a directory called AFOLP in the “\” directory. Inside the “AFOLP” directory the Offline Programmer uses other directories like PROGRAM, UTOOL, LTOOL, etc. Each one of these directories contains files for that particular type.

## TOOLING LIBRARY

The TOOLING LIBRARY screen is slightly different because two paths are shown. When the "Change Volume" softkey is pressed, another prompt will ask for either the upper or lower volume to change. Use the softkeys to select the correct choice.

PROGRAM: AUTOFORM CINCINNATI INCORPORATED OFFLINE PROGRAMMER 30 SEP 96 TEST001		TOOLING LIBRARY 10:39 AM	
UPPER TOOL VOL: DRIVE C PATH: C:\AFOLP\UTOOL BYTES REMAINING: 737k		LOWER TOOL VOL: DRIVE C PATH: \AFOLP\LTOOL BYTES REMAINING: 737k	
SEQ	UPPER TOOLS	DATE	SEQ
1	47U	29APRIL91 11:59	1
2	135U	28APRIL91 10:59	2
Use up and down field keys for more directory entries.			
STATUS: Select a menu using the softkeys.			
Edit Tool	Load Tool	Store Tool	Change Volume
			Delete Tool
			Last Menu

## PROGRAM STORAGE

The following is the PROGRAM STORAGE screen for the Offline Programmer. Note that the upper left corner shows the field called “PATH”. This is the path or directory where all program files will be stored. The Bytes Remaining field on the opposite side of the screen shows how much storage space is available on

the entire storage device, not just this directory. The default path for the PROGRAM STORAGE menu is \AFOLP\PROGRAM.

PROGRAM: AUTOFORM CINCINNATI INCORPORATED OFFLINE PROGRAMMER 30 SEP 96 TEST001		PROGRAM STORAGE 10:36 AM	
VOLUME: DRIVE C PATH: \AFOLP\PROGRAM BYTES REMAINING: 1200k		SPACE AVAIL: 9705472	
SEQ	PROGRAM NAME	DATE	SEQ
1		29APRIL91 11:59	1
2	TEST001	28APRIL91 10:59	2
STATUS: Select a menu using the softkeys.			
Load Program	Store Program	Delete Program	Change Volume
			Job Data

It is possible to store PROGRAM FILES to another disk drive such as the 5-1/4” or 3-1/2” floppy drive. To do this, press the “Change Volume” softkey and the Offline Programmer will prompt you to enter the new disk drive letter. For example, to store or load a program from floppy drive “A”, enter A at the prompt.

**Note:** Each drive volume has it’s own default directory associated with it. These can be changed in the FILE PREFERENCES MENU discussed later.

Once the volume is changed, it will be saved when the ESC key is pressed to exit the Offline Programmer. Each Storage Screen, i.e. TOOL LIBRARY, PART STORAGE, SHAPE LIBRARY, has a "Change Volume" softkey that functions similarly.

## MANAGEMENT DATA

This screen displays information from the AUTOFORM Control which has been downloaded to the PC. Management data is shown below. It is recommended this data be downloaded regularly so the Offline Programmer shows current information. The "Update Manag. Data" softkey will redraw the screen to reflect new data which has just been downloaded. This information is normally loaded when the Offline Programmer is started. It can be printed using the HARD COPY feature.

PROGRAM: AUTOFORM CINCINNATI INCORPORATED OFFLINE PROGRAMMER 30 SEP 96	
DEMO1PROG MANAGEMENT DATA 10:51 AM	
TOTAL MACHINE STROKES . . . . .	1385
PARTS COUNTER . . . . .	385
BATCH COUNT SET . . . . .	0
BATCH COUNT ACTUAL . . . . .	0
TOTAL POWER ON TIME . . . . .	116 hours
POWER CONSERVATION TIME . . . . .	60 minutes
TOTAL CYCLE TIME . . . . .	90.0 hours
MAIN DRIVE ON TIME . . . . .	100.2 hours
STATUS: Select a function using the softkeys.	
Update Manag. Data	

For additional information, please see SECTION 7 in the AUTOFORM Operation Manual, EM-408.

## HARD COPY

This menu allows the current information (program, upper tool, lower tool, management data) to be sent to the printer. Following is the HARD COPY MENU.

PROGRAM: AUTOFORM CINCINNATI INCORPORATED OFFLINE PROGRAMMER 30 SEP 96	
DEMO1PROG HARD COPY 10:45 AM	
Print Current Program Print Current Upper Tool Print Current Lower Tool Print Management Data Edit Printer Parameters  Save Printer Configuration	
STATUS: Select a menu using the softkeys.	
Print Program	Print Upper Tool
Print Lower Tool	Print Manage
Printer Setup	Save Printer Config.

When the softkey is pressed, the selected information will be printed. **Do not attempt to use the printer functions without a printer connected to the parallel port.** This may cause the Offline Programmer to lock-up for up to 2 minutes. The following shows a sample printout of a Program file.

Cincinnati Incorporated AUTOFORM Offline Programmer ----- Page: 1								
PROGRAM NAME: DEMO1PROG								
PART NAME . . . . .	DEMO1							
MATERIAL THICKNESS . . . . .	0.058							
CLAMP POSITION ADJUST . . . . .	0.000							
MATERIAL TYPE . . . . .	Mild Steel							
K FORMING FACTOR . . . . .	AUTO							
RETURN SPEED . . . . .	20.0 in/min							
GUARD MUTE PT . . . . .	top of mat. + 1/4 in							
R, Z-AXIS . . . . .	Off							
TOOL SETS								
UPPER	LOWER							
A: ACUTE-U	ACUTE-L							
B:								
C:								
D:								
E:								
STEP	REPEAT	REVERSAL MODE	VALUE	BEND POSITION	BEND LENGTH	RAM OPENING	FORMING SPEED	
1	1	Angle	90.0	Center	16.0	7.0	20.0	
2	1	Angle	90.0	Center	16.0	7.0	20.0	
3	1	Angle	90.0	Center	16.0	7.0	20.0	
4	1	Angle	135.0	Center	16.0	7.0	20.0	
5	1	Angle	135.0	Center	16.0	7.0	20.0	
STEP	TOOL	SPEED CHG. DWN	SPEED CHG. UP	TILT	BOTTOM DWELL	MATERIAL CLAMP	UP STOP	DOWN STOP
1	A	0.25	0.25	0.0000	0.0	Off	Off	Off
2	A	0.25	0.25	0.0000	0.0	Off	Off	Off
3	A	0.25	0.25	0.0000	0.0	Off	Off	Off
4	A	0.25	0.25	0.0000	0.0	Off	Off	Off
5	A	0.25	0.25	0.0000	0.0	Off	Off	Off
STEP	PROG OFF FOOTSWITCH	PART ORIENT						
1		0						
2		0						
3		0						
4		0						
5		0						
STEP	GAGE MODE	LEFT FLANGE	RIGHT FLANGE	ANGLE	BEND ALLOW	RETRACT DIST	PAUSE TIME	
1	Standard	0.750			-0.056	0.0	0.1	
2	Standard	2.000			-0.056	0.0	0.1	
3	Standard	2.000			-0.056	4.0	0.1	
4	Standard	1.000			-0.028	0.0	0.1	
5	Standard	24.000			0.000	0.0	0.1	
Cincinnati Incorporated AUTOFORM Offline Programmer ----- Page: 2								
STEP	FINGER OFFSET	R-left	R-right	Z-left	Z-right	FR-left	FR-right	
1	0.000	0.048	0.048	-7.500	7.500	0.000	0.000	
2	0.000	0.048	0.048	-7.500	7.500	0.000	0.000	
3	0.000	0.048	0.048	-7.500	7.500	0.000	0.000	
4	0.000	0.048	0.048	-7.500	7.500	0.000	0.000	
5	0.000	0.048	0.048	-7.500	7.500	5.972	5.972	

The Edit Printer Parameters selection can be used to customize the printer set-up for your particular printer. The following shows a copy of this screen.

PROGRAM: AUTOFORM CINCINNATI INCORPORATED OFFLINE PROGRAMMER 30 SEP 96	
EXDEMO HARD COPY 10:48 AM	
Printer Port:	LPT1
Lines Per Page:	56
Line Spacing:	single space
Margin:	0
Page Width:	80
Page Mode:	Use form feeds to end a page
Line Termination:	<CR> <LF>
Paper Type:	continuous
STATUS: Use the softkeys below to select a parallel printer port.	
LPT1	LPT2
LPT3	Return To Prt Menu

Use the field keys and softkeys to answer the prompts. Be sure to use the "Save Printer Configuration" selection to store the information before exiting the Offline Programmer.

## SIMULATE SCREEN

On the AUTOFORM Control the RUN MODE screen is used to step through the program and bend the part.



one directory level (for example, from the “\PROGRAM” to the root directory “\”) and display the sub-directories located in the new directory. The “Enter by Name” softkey may also be pressed to allow the complete pathname to be typed by the user.

Note that changing the path for a Volume does not affect the pathname shown in the FILE PREFERENCES MENU.

If you are going to copy files from the selected path to the destination volume, first make sure the file type corresponds to the path you have selected. If not, the error message, “File Data Corrupt, Bad File Type”, will occur and the copy function will abort. As a rule, always set the File Type first, then change path to the desired directory.

If the pathname is changed to a path that does not exist, an error message “**File or Directory Not Found!**” will be displayed. If an indexed file format is being used, the error message, “**Unable to Open Index File**” will be generated if the index file does not exist in the specified path. See the FILE UTILITY MENU section for more information on rebuilding an index file.

#### CHANGE SEARCH FORMAT

Change Search Format will change the directory listing to allow specific files to be searched for on the Volume and directory displayed. The default search pattern is \* which means show all files. It is possible to use the ? character to only show files with the desired characters. The ? character represents any single character. The following search pattern could be entered:

**PROG?1** - To list all files beginning with the letters PROG followed by any single character and then a 1. Examples of matching files are PROG11, PROGX1, etc.

Search patterns are used when there are a large number of files on the disk and it is not desired to page through using the PAGE UP and PAGE DOWN keys.

**Note:** *It is recommended that the Search Format be reset to \* (show all files), especially if there are other operators that use the Offline Software.*

#### SELECTING FILES

The next softkey, “Select Files”, is used to select which files the the active directory will be acted on by the “Copy File” and “Delete File” softkeys.

After pressing the “Select Files” softkey, the following softkeys will be displayed:

Select All	Select Page	Select Single						
------------	-------------	---------------	--	--	--	--	--	--

When one of these softkeys is pressed, the result will be to highlight one or more files as listed in the active directory. A file is highlighted by turning on (yellow) the small block directly to the right of the sequence number for the file.

The “Select All” softkey will select all of the files in the Active Directory which correspond to the current search pattern. This will highlight all of the files in the window and print the message >>>> ALL FILES SELECTED <<<<< at the bottom of the window.

The “Select Page” softkey will select only those files displayed on the screen, fifteen at a time.

The “Select Single” softkey allows the user to scroll through the directory and select individual files by pressing the “Toggle Select Status” softkey. Use the PAGE UP and PAGE DOWN keys to change pages and the up and down cursor keys to position in each page. The small square will move up and down to indicate the current position on the page. As each file is selected, it will be highlighted. Pressing the “Toggle Select Status” when the cursor is at the position of a highlighted filename will unselect the file. The mouse may be used as well to select files.

It is possible using the SELECT PAGE and SELECT SINGLE functions to highlight up to 45 files. If the operator attempts to select any more, an error message will be displayed.

When the “Swap Source/Dest” softkey is pressed, file selection information will follow the directory.

#### FILE TRANSFER - REMOTE DIRECTORY

This feature allows the user to display a directory of files stored at the machine control.

When the Volume is a serial port (COM1, COM2), another softkey will be displayed labeled “Update File List”. This softkey will issue a command to the machine control to send a list of filenames currently stored in internal memory on the control. This will take a minute or so to transfer. Once the files are transferred, the names will appear in the directory. You may then select files in the usual manner for copying or deleting. This works for both the SOURCE and DESTINATION volumes. Note that if you change the FileType, the directory listing will be cleared and it will be necessary to press the “Update File List” softkey again to transfer a new directory listing. The Change Search Format function can only be used to view specific files matching the search pattern.

## COPYING FILES

The “Copy Files” softkey, when pressed, will copy all selected files in the SOURCE Volume and Path to the DESTINATION Volume and Path. It is only possible to copy files from the SOURCE to the DESTINATION. The actual transfer process which will take place depends on the type of Volume. If one of the volumes is a serial port, then Kermit will be invoked to transfer the files. Otherwise, the files will be transferred directly.

When the “Copy Files” softkey is pressed, the status line and softkeys will change as shown:

STATUS: Select options if file already exists on Destination Volume.								
Over-Write File(s)	No Over-Write							

During the copy process, if the file already exists on the Destination Volume, the softkey selected above will determine whether to overwrite the file without warning, or to abort the copy process. Using the “No OverWrite” option protects files on the Destination Volume from being replaced by files on the Source Volume with the same name.

If you are copying a file which does not match the current file type indicated, the following error will occur:

### ERROR: File Data Corrupt, Bad File Type

To avoid confusion, it is recommended that files of different types should not be mixed in the same disk directory.

## DELETING FILES

The “Delete Files” softkey will delete the selected files from either the SOURCE or DESTINATION Volume, whichever is active at the time. It is not possible to delete files from a serial port Volume.

When deleting files, the operator will be prompted as shown below, for every file before deleting the file. This is a safety precaution to prevent accidentally deleting files.

STATUS: Deleting file <123456.789>. Do you wish to continue?								
Yes	No							

**Note:** *If indexed files are being used, do not use DOS or change the format to unsorted files to delete files from the directory. Since the files were not deleted from the index, they will still be referenced as being on the disk. It will be necessary to rebuild the index file in this case to obtain the proper directory listing.*

While the FILE TRANSFER screen is active, it is not possible to send/receive files in the background from the control. The control will display an error message: “**FILE SYSTEM LOCKED**”. To ensure the operator of the press has access to offline files, do not leave the offline software idle in the FILE TRANSFER MENU.

This also applies to the control. If the operator is not currently using the FILE TRANSFER MENU, change screens to any other menu to allow the offline programmer to access files on the control.

## FILE UTILITY

The FILE UTILITY MENU contains functions for managing disks. It can be used to initialize floppy disks, rebuild an index file, create directories on disks, and restore archive files.

### INITIALIZE DISKS

The “Initialize Disk” function erases a floppy disk and creates the default sub-directories on it. In addition, if indexed files are being used, an index file is created in each sub-directory. This function does not format a disk, the floppy disk must already be formatted. If it is not, you must exit out of the Offline Programmer and format the disk using the DOS FORMAT command. Consult your DOS documentation for information on formatting disks.

**IMPORTANT:** *Initializing a disk will erase all information that is already on the disk. Verify that the disk does not contain any valuable data before initializing it!*

To initialize a disk, first use the “Change Drive Volume” softkey to select either Drive A or Drive B. Then press the “Init Floppy Disk” softkey. The screen will display a warning message and prompt whether to abort or continue. If you are sure you want to initialize the disk, press the “Continue” softkey.

After the disk has been initialized, the Operation Status will indicate DONE.

### CHANGE PATH

This softkey allows the operator to enter the path-name of a particular directory on the drive volume and functions identically to the “Change Path” softkey on the FILE TRANSFER screen. This path is then used by either the Rebuild Index function or the Make New Path function. The Current Path is displayed on the top the screen.

### REBUILD INDEX FILE

This function is only used whenever the 16 character or 11 character sorted file format is being used. If files have been copied to a disk using a PC with DOS,

they will not be identified in a directory listing in the Offline Programmer because the index file has no record of these files. Rebuilding the index file will delete the existing index file on a disk and create a new one by scanning all files on the disk and generating the index file. Thus any new files copied to the disk will now be in the indexed directory.

This feature should also be used if, for some reason, a directory listing will not appear for a particular directory, the index file is corrupt or when converting existing data disks from 11 character unsorted format to one of the sorted formats.

The Rebuild Index function will only build the index file for the directory specified under the current path. Make sure the desired path is selected first by using the Change Path command.

**Note:** When updating from an older version of the AUTOFORM Offline Programmer, it will be necessary to rebuild the Index File in all the directories. This is necessary because the old version of the Offline Programmer did not use index files.

When building the index file, the warning message shown below may occur:

**WARNING: Directory contains one or more invalid data files.**

This indicates that there are one or more files in the specified path which are not valid AUTOFORM files. It is not necessary to delete these files for proper operation. However, you should scan the disk directory to determine the cause.

### MAKING DIRECTORIES

The "Make New Dir" softkey will create a sub-directory in the current path on the selected drive volume. This feature may be used to create additional directories on the disk for storing files.

For example, the sub-directory TST within the PROGRAM directory could be created by changing the current path to \PROGRAM, pressing the "Make New Dir" softkey and entering TST as the new path.

### RESTORE ARCHIVE

The Restore Archive function is used to extract all of the files from an archive file created on the AUTOFORM Control. In the FILE UTILITY MENU on the AUTOFORM Control, you can create an archive file on a floppy disk of the entire internal file system by using the "Back-up/Restore Internal" softkey. This archive file contains all of the files stored in internal memory of the control.

You can take this archive file on the floppy disk, copy it into the Text Directory on the PC using the DOS

command "Copy", and extract all the files from it using the "Restore Archive" function. Pressing the "Restore Archive File" softkey will display a list of archive files found in the Text directory on the current Volume. Enter the sequence number of the desired archive file.

**Note:** The extracted files will all be stored on the same volume that the archive file is located on. If a file already exists on that volume with the same name as a file in the archive, it will be overwritten by the file in the archive!

When the "Continue" softkey is pressed, the Offline Programmer will begin extracting files from the archive. When it is finished, the Operation Status will indicate DONE.

### FILE PREFERENCES

This menu is used to define the file pathnames which are associated with each file type. It is organized around the Storage Volume. For each storage volume, the operator may select the default directory where files of a particular type are stored. These are the same directories which each of the individual storage screens use. Changing the pathname for each file type in this screen will change where each individual storage screen (i.e. PROGRAM, TOOL LIBRARY, etc) looks for files. The default directories are shown in the following:

PROGRAM: AUTOFORM CINCINNATI INCORPORATED OFFLINE PROGRAMMER		30 SEP 96	
DEMO3		FILE PREFERENCES	
		10:57 AM	
VOLUME: DRIVE C		Disk FileName Format: 16 char sorted	
Program File Path	:	\AFOLP\PROGRAM	
Upper Tool File Path	:	\AFOLP\UTOOL	
Lower Tool File Path	:	\AFOLP\LTOOL	
CAD Part File Path	:	\AFOLP\CAD	
Shape File Path	:	\AFOLP\SHAPE	
Adaptive File Path	:	\AFOLP\TEACH	
Text File Path	:	\AFOLP\TEXT	
DXF File Path	:	\AFOLP\DXF	
3DCAD Part File Path	:	\AFOLP\CAD3D	
STATUS: Make a selection using the softkeys.			
Select Storage Volume	Edit File Path	Change Filenam Format	Set Default Paths
			File Menu

### For Volumes A and B:

Programs: \PROGRAM  
 Upper Tools: \UTOOL  
 Lower Tools: \LTOOL  
 Cad Files: \CAD  
 Shape Files: \SHAPE  
 Adaptive: \TEACH  
 Text Files: \TEXT  
 DXF Files: \DXF  
 3D Cad Files: \CAD3D

## For Volumes C - Z and Serial Ports

Programs: \NNNNN\PROGRAM  
Upper Tools: \NNNNN \UTOOL  
Lower Tools: \NNNNN \LTOOL  
Cad Files: \NNNNN \CAD  
Shape Files: \NNNNN \SHAPE  
Adaptive: \NNNNN \TEACH  
Text Files: \NNNNN \TEXT  
DXF Files: \NNNN\DXF  
3D Cad Files: \NNNN\CAD3D

**Note:** "NNNNN" represents the pathname that the AUTOFORM Offline Programmer was installed in and is usually AFOLP.

Unless there is a specific requirement to do so, use the default pathnames to avoid any confusion on where a file is stored.

### SELECT STORAGE VOLUME

This softkey will select which volume to display or change the File Preferences. The current volume is displayed on top of the screen.

### EDIT FILE PATH

The operator may change the path associated with each Storage screen by entering a new pathname for one or more storage paths.

### SET DEFAULT PATHNAMES

The softkey labeled "Set Default Pathnames" will reset all of the pathnames of the volume displayed back to those shown previously.

### FILENAME FORMAT SELECTION

The Disk Filename format field is used to let the operator choose between 16 character filenames with index, 11 character filenames with index, and 11 character filenames without index. For more information on the different filename formats, consult the AUTOFORM manual. The default value of 16 character sorted is recommended.

## COMMUNICATIONS SET-UP

This menu is used for setting the communications baud rate and other Kermit Parameters. The up and down cursor keys are used to select a field to edit.

### COMMUNICATIONS PORT

The first item on the list is Communication Port. Select the Serial Port whose parameters you wish to change. The Offline Programmer can handle 4 ports: COM1, COM2, COM3, and COM4 (due to limitations of DOS, only 2 ports can be active at one time).

**Note:** There are no standard addresses for PC serial ports COM3 and COM4. The Offline Programmer expects COM3 to be at address 0x3E8 and use IRQ4 and COM4 to be at address 0x2E8 and use IRQ3.

### BAUD RATE

The baud rate can be changed using the softkeys to a value between 300 and 19200. The change takes effect as soon as the softkey is pressed. The default value of 9600 is usually satisfactory for most applications. If the baud rate is changed, the baud rate on the remote AUTOFORM Control must be changed to the same value!

### PORT STATUS

A port must be enabled before the Offline Programming software will attempt to access it. If a port is disabled, the Offline Programmer will ignore any data which is received on that port, and that port cannot be selected as either the Source or Destination Volume in the the FILE TRANSFER MENU. You should enable only those ports which are actually connected to a remote AUTOFORM control.

### KERMIT TIMEOUT VALUE

This value sets the number of seconds the Kermit communications protocol will wait before resending lost packets. The default value of 10 seconds should be sufficient for most PC's however it may need to be increased if the PC running the Offline Programming software has a slow disk drive.

## FILE SERVER MODE

The Offline Software has Kermit Communications always active so requests from the AUTOFORM Machine Control for files may be made while someone is using the Offline Software. Under Windows, one application may be minimized so another application can be run at the same time. Multiple applications can run simultaneously. The ALT-TAB key combination can be used to cycle through all active applications.

Normally when the Offline Programming software is running under Windows, it is in full screen mode. That is, it cannot be run as a separate window smaller than the full screen. Windows 3.x has a defect when it comes to applications that require full screen VGA graphics mode. If you minimize such an application, it will not run in the background. Windows freezes the application until it is maximized back to the full screen. Unfortunately, this also freezes the background communications so the AUTOFORM cannot send and receive any files.

A number of our users need to use the computer to run other applications at the same time they need it to be a File Server for the AUTOFORM Press Brake. To overcome this defect in Windows, an option on the Page 2 of the MAIN MENU screen called Filer Server Mode is available. When this item is selected, the software turns off the VGA display mode effectively clearing the screen. The Offline Programming software is still active and may now be minimized and Windows will allow it to run in the background.

The screen will change as follows:

**File Server Mode Running  
Autoform Application may now be Minimized  
Press F10 to return to normal operation of the  
Autoform Application**

To restore the screen, press the "F10" softkey.

This option is only needed if you are running the Offline Programming Software from Windows 3.x.

## COMMUNICATING WITH A REMOTE AUTOFORM

There are two methods in which files can be transferred over RS-232 between the PC and the AUTOFORM: the transfer can be initiated at the AUTOFORM control, or the transfer can be initiated at the PC. For the following discussions, assume that an AUTOFORM Press Brake is connected to the PC running the Offline Programming software on the PC's COM1 serial port.

### TRANSFERS AT THE PC

In this method, the operator of the PC either sends or receives files to/from the AUTOFORM. The AUTOFORM is acting as a Server and the PC is a client. These transfers will be invisible to the operator of the AUTOFORM and require no action at the control. The AUTOFORM can even be in Cycle Mode making parts while the files are being transferred. The only exception is that the AUTOFORM cannot be in the FILE TRANSFER MENU. If it is, a "File System Locked" error will be displayed on the PC when it tries to access files on the AUTOFORM.

**Sending Files** - To send a Lower Tool from the PC to the AUTOFORM, the operator of the PC puts the Offline Programmer in the FILE TRANSFER MENU. He sets the File Type to Lower Tool, sets the Source Volume to Drive C (or whichever drive he desires), and sets the Destination Volume to COM 1. After selecting the file(s) to transfer, he presses the "Copy File(s)" softkey to begin the transfer. After it is finished, if the operator of the AUTOFORM were to look

at his TOOLING LIBRARY MENU, he would see the new lower tool(s) located in the AUTOFORM's Internal file memory.

**Receiving Files** - Receiving a lower tool from the AUTOFORM is very similar. The operator of the PC puts the Offline Programmer in the FILE TRANSFER MENU. He sets the File Type to Lower Tool, sets the Source Volume to COM1 and sets the Destination Volume to Drive C (or whichever drive he desires). After entering the names of the tools he wants to receive, he presses the "Copy File(s)" softkey to begin the transfer. If the tools are not stored on the AUTOFORM, a "FILE NOT FOUND" error will be displayed. If they are found on the AUTOFORM, they are transferred to the PC disk drive.

**Note:** *Some older AUTOFORMs are not capable of these background file transfers. In general, if the AUTOFORM is equipped with a disk drive, it has the background transfer capability. If the AUTOFORM does not have a disk drive, it probably does not have the background transfer capability and the following method must be used.*

### TRANSFERS AT THE AUTOFORM CONTROL

In the second method, the operator of the AUTOFORM either sends or receives files to/from the PC. The PC is acting as a server and the AUTOFORM is the client. The PC running the Offline Programming software can be idle (no one using it) or someone can be writing programs, designing parts, etc. The only exception is that the PC cannot be in the File Transfer menu. If it is, a "File System Locked" error will be displayed on the control when it tries to access files on the PC.

The following examples each have two cases, one with Remote Directory Change turned ON and one with it turned OFF. Remote Directory Change is an option on newer AUTOFORMs (those with disk drives) which allows the control to precede each file transfer request with a directory name telling the PC where to store or look for the file.

The remote directory change option is turned ON or OFF in the COMMUNICATIONS SET-UP MENU on the AUTOFORM control. If your control does not have this option, please refer to Case 2 below. If your AUTOFORM does have this option, it is recommended that you use it because receiving files will be somewhat quicker.

If the remote directory change is turned on, the directory name that is sent is the one stored in the control's FILE PREFERENCES MENU for the REMOTE

volume. These should be set to the same path names that are listed in the FILE PREFERENCES screen on the PC for the COM 1 serial port. If a "File Write Err" occurs when you try to send a file from the control, check the pathnames in the FILE PREFERENCES MENU for the REMOTE volume and make sure they are valid pathnames on the remote PC.

## SENDING FILES

### **Case 1 - Remote Directory Change turned ON**

The operator at the AUTOFORM goes to the FILE TRANSFER MENU on the control, sets the File Type to Lower Tool, sets the Source Volume to INTERNAL, and sets the Destination Volume to REMOTE. He selects the files he wants to send and then presses the "Copy File(s)" softkey. The AUTOFORM control first sends a command to the PC telling it which directory to store the upcoming files in and then it sends the file(s). The PC receives the files and stores them in the directory that it was told to.

### **Case 2 - Remote Directory Change turned OFF**

The operator at the AUTOFORM goes to the FILE TRANSFER MENU on the control, sets the File Type to Lower Tool, sets the Source Volume to INTERNAL, and sets the Destination Volume to REMOTE. He selects the files he wants to send and then presses the "Copy File(s)" softkey. The AUTOFORM control sends the file(s). When the PC receives the file, it determines what type of file it is, Program, Upper Tool, Lower Tool, etc. It stores the file in whatever directory is entered in the FILE PREFERENCES MENU for COM1 serial port for that file type.

## RECEIVING FILES

### **Case 1 - Remote Directory Change turned ON**

The operator at the AUTOFORM goes to the FILE TRANSFER MENU on the control, sets the File Type to Lower Tool, sets the Source Volume to REMOTE, and sets the Destination Volume to INTERNAL. He enters the name of the tools he wants to receive and then presses the "Copy File(s)" softkey. The AUTOFORM control first sends a command to the PC telling it which directory to look for the file in and then it sends the name of requested file(s). The PC receives the filename(s) and looks for them in the directory that it was told to. If they are found in that directory, they are sent to the control otherwise a File Not Found error is returned.

### **Case 2 - Remote Directory Change turned OFF**

The operator at the AUTOFORM goes to the FILE TRANSFER MENU on the control, sets the File Type to Lower Tool, sets the Source Volume to REMOTE, and sets the Destination Volume to INTERNAL. He selects the tools he wants to receive and then presses the "Copy File(s)" softkey. The AUTOFORM Control sends the name of the requested file to the PC. The PC does not know what type of file it is so it first assumes it is a Program file and it looks for a file with that name in the Program directory for the COM1 serial port. If it finds a match, it sends the file, otherwise it tries the Upper Tool directory. It tries every file type until it finds a match. The order it searches is always:

1. Program
2. Upper Tool
3. Lower Tool
4. CAD
5. Shape
6. Adaptive
7. Text

If the PC does not find a match in any of these directories, it returns a file not found error.

**Note:** *This may cause problems if the same name is used for different types of files. For example if you name a Program TEST and a Lower Tool TEST, when you try to receive the Lower Tool TEST, the PC will always find the Program TEST first and send it. This will cause a "BAD FILE TYPE" error on the control. The solution to this is to use the Remote Directory Change Option or never use the same name for different types of files.*



