

# LICOM AlphaCAM



## INTRODUCTION (English)

First Choice CAD/CAM system for Windows™



**Milling**



**Routing**



**Turning**



**Punch/Plasma**



**Wire**



**Laser**



**Flame**



**Water Jet**



**Marble**

2, 2½, 3, 4, 5  
axis output



**Surface Machining**

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## Conventions when using This Manual

AlphaCAM requires a 2-button mouse.

The LEFT mouse button **LMB**  is used to select commands and options from menus and dialog boxes, and to select items or X, Y positions on the screen by clicking on them. In what follows, 'Click on' means "Put the screen arrow pointer on the place specified and click the LEFT mouse button".

The RIGHT mouse button **RMB**  usually means FINISHED selection. When appropriate, the RIGHT button brings up a floating menu at the screen pointer position. In what follows, 'Right Click on' means "Put the screen arrow pointer on the place specified and click the RIGHT mouse button".

Right Mouse Button = Edit/Delete entry in a table.

When selecting items from the screen, you can click on them one by one, or drag a selection window around several items, or combine both methods. Only items completely enclosed by the window will be selected. Selected items are shown dark blue. If you have selected some items incorrectly, clicking on them will de-select them. RIGHT Click when you have finished selecting the items in order to action the command.

## Introduction

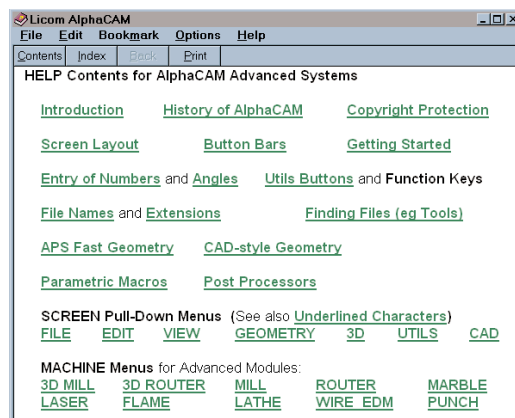
This manual is an introduction to the AlphaCAM modules. It is intended to show how to get up and running quickly.

It is assumed that you are familiar with the Windows™ operating system on the computer on to which the AlphaCAM modules are to be installed.

This manual explains how to install and configure the AlphaCAM modules. It also explains the basic concepts and procedures.

The Help file should be used for more detailed information about specific functions.

To activate Help on any AlphaCAM™ module, select the **HELP | Contents** menu item.



## Installation

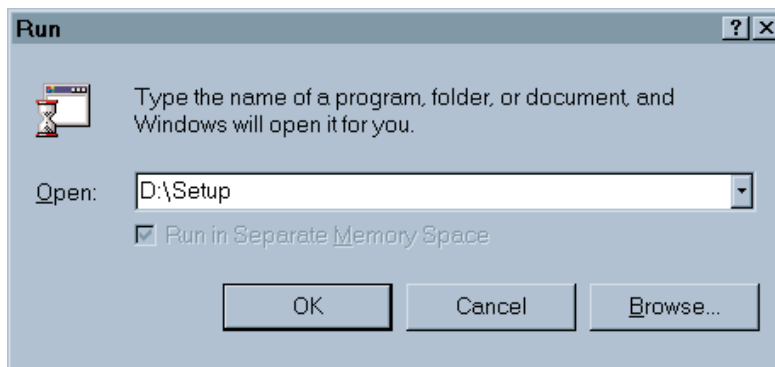
Before breaking the seal and removing the CD from the case, read the notes on the seal.

If you have a CD install floppy disk, put it in drive A: or B: before inserting the CD into the CD-ROM drive. If Auto-Start is set for your CD, the set-up dialog box will appear after a few seconds.

If Auto-Start is not set, click on **Start | Run** and enter **D:\Setup**.

*(If your CD drive is not D, use the correct letter instead of D)*

*On computers running a Windows NT™ operating system you MUST have Administrator access to install AlphaCAM System modules.*



The set-up dialog box shows the options available on the CD: **AlphaCAM** modules, Demo modules, Licom Video.

Also displayed is a list of available languages:

Chinese, Czech, Danish, Dutch, English (UK),

English (USA), Finnish, French, German, Italian,

Japanese, Polish, Portuguese, Spanish, and Swedish.

click on your selection and language, then on

The **AlphaCAM** set-up screen will be displayed.

Read the options displayed in the following dialog boxes and select the relevant options.

If you are not sure of a suitable response to the dialog box, contact your system administrator. If you do not have a system administrator, contact your **AlphaCAM** supplier for help.

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## AlphaCAM System

The AlphaCAM system is in two parts:

### **The AlphaCAM graphics module:**

The drawings and NC programs are created and manipulated in the graphics modules.

AlphaCAM graphics modules are available at three levels:

- Basic
- Standard
- Advanced.

When requesting technical support from your supplier, you **MUST** know with which level and version date of AlphaCAM module you are working, together with the type of security key, its serial number and reference.

To find the level and version date of your AlphaCAM installation:

Click on HELP | About: a display box will show the level, the module, and the module date.

*Make a note of your system information on the page opposite.*

*REMEMBER to update the information when upgrading the system.*

### **The AlphaEDIT text editor:**

This is a multi-windowing text editor that allows text files to be created and manipulated, in addition to the functionality for editing of AlphaCAM files, i.e.

- NC files output from the graphics module,
- Post processor files,
- Material files,
- AlphaCAM Standard Macros.

AlphaEDIT also provides communication functions in order to get the NC program created on the machine tool.



## System Information

### AlphaCAM Level

- Basic    
  Standard    
  Advanced

### AlphaCAM Modules

- |                                  |   |  |
|----------------------------------|---|--|
| <input type="checkbox"/> Milling | <input type="checkbox"/> 3D 3Axis Milling | <input type="checkbox"/> 3D 5 Axis Milling |
| <input type="checkbox"/> Router  | <input type="checkbox"/> 3D 5 Axis Router | <input type="checkbox"/> Lathe             |
| <input type="checkbox"/> Flame   | <input type="checkbox"/> Laser            | <input type="checkbox"/> Marble            |
| <input type="checkbox"/> Punch   | <input type="checkbox"/> Wire             | <input type="checkbox"/> Nest              |
| <input type="checkbox"/> DieCut  | <input type="checkbox"/> AlphaEDIT        | <input type="checkbox"/> AlphaCAD          |

Other \_\_\_\_\_

Extra _____	Key _____
Cost _____	Key _____
Options _____	Key _____

### Module Date:

First Installation	____ / ____ / ____
Current Installation	____ / ____ / ____
Current Installation	____ / ____ / ____
Current Installation	____ / ____ / ____
Current Installation	____ / ____ / ____

### Security Key Details

Serial Number	Reference
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

### Support Maintenance Plan

Are you an **SMP** member                      YES / NO

## System Folders

When Licom AlphaCAM modules are installed, files are copied into three system folders:

Alpha##	this is the main program folder. Located under <i>Program Files</i> . The ## will be replaced by the version year of the modules.
Licomdat	this is the system data folder, where Post processors, Material files, Font Libraries, and Tooling Libraries are stored.
Licomdir	this is the user data folder, where the drawings and NC programs are stored.

The users create a directory structure below Licomdir, in order to store and retrieve the files created easily.

## Default Licomdir Structure

3dtutor	Sample 3D drawings
Apsnlist	Folder for Nest-list files.
Autosave	Backup files created. The backup frequency is configurable and the backup files named 1.a?d, 2.a?d, 3.a?d. The "?" is replaced by the module letter.
Mtools	Sample drawings of user-defined Milling tools
Ptools	Sample drawings of user-defined Punch tools
Rtools	Sample drawings of user-defined Router tools
Scratch	Scratch area for odds and ends drawings.
Ttools	Sample drawings of Turning tools
Tutorial	Sample Drawings
Vbmacros	Folder for storage of user-defined VB macros
Winmacro	Sample AlphaCAM standard macros

## Post processors

Along with the system CD, you may be provided with a floppy disk containing the post processor(s). The post processor files must be copied into the relevant post processor folders located in Licomdat.

fposts.alp	AlphaCAM Flame cutting post processors
lposts.alp	AlphaCAM Laser cutting post processors
mposts.alp	AlphaCAM Milling post processors
pposts.alp	AlphaCAM Punch post processors
rposts.alp	AlphaCAM Router post processors
sposts.alp	AlphaCAM Marble/Stone cutting post processors
tposts.alp	AlphaCAM Turning post processors
wposts.alp	AlphaCAM Wire erosion post processors

## File Name Extensions

File name extensions (e.g. .dat, .exe .doc) in Windows 95 and NT have special features. Not only do they identify the type of file to the user; they also identify it to the operating system. For example, if you double click on a file name displayed in Explorer, Windows will automatically start the appropriate application program and load the file into the application.

Note that .alp is the extension for all Post, Defined Tool and Font folders. The file names inside have different extensions, depending on the module, as shown below, but .alp as the extension of a folder name simply means that this is an **ALPhaCAM** system folder in the same way that .aps means it is an **APS** system directory.

### Table of Extensions and File Types:

#### All Modules:

.anc NC Program  
 .auf User Font  
 .anl Nest List  
 .txt Text File  
 .ctx Compiled Text

#### 3D Mill, 2D Mill:

.amd Drawing  
 .amt Tool  
 .amp Post  
 .amm Param Macro  
 .amb VB Macro

#### Router:

.ard Drawing  
 .art Tool  
 .arp Post  
 .arm Param Macro  
 .arb VB Macro

#### Lathe:

.atd Drawing  
 .att Tool  
 .atp Post  
 .atm Param Macro  
 .atb VB Macro  
 .ath Thread

#### Punch:

.apd Drawing  
 .apt Tool  
 .app Post  
 .apm Param Macro  
 .apb VB Macro

#### Diecut:

.add Drawing  
 .adt Tools  
 .adp Post  
 .adm Param Macro  
 .adb VB Macro

#### Wire EDM:

.aed Drawing  
 .aep Post  
 .aem Param Macro  
 .aeb VB Macro

#### Laser:

.ald Drawing  
 .alp Post  
 .alm Param Macro  
 .alb VB Macro

#### Flame:

.afd Drawing  
 .afp Post  
 .afm Param Macro  
 .afb VB Macro

#### (Water Jet):

(.ajd Drawing)  
 (.ajp Post)  
 (.ajm Param Macro)  
 (.ajb VB Macro)

#### Stone (Marble):

.asd Drawing  
 .asp Post  
 .asm Param Macro  
 .asb VB Macro

(The extensions for Water Jet are reserved for future use)



## Backup

It is very important that the Licomdat and Licomdir folders are backed up on a regular basis.

This is all the changeable data (your work), and as such, is your responsibility to protect.

Advice may be sought from your local supplier as to methods and routines for backup procedures, if required.

Typically, backups should be made daily with 4/6 rotating daily tapes/disks, 4 rotating weekly tapes/disks, and 2 rotating monthly tapes/disks.

Day1-Day2-Day3-Day4-Week1	Day1-Day2-Day3-Day4-Week2
Day1-Day2-Day3-Day4-Week3	Day1-Day2-Day3-Day4-Week4, Month1
Day1-Day2-Day3-Day4-Week1	Day1-Day2-Day3-Day4-Week2
Day1-Day2-Day3-Day4-Week3	Day1-Day2-Day3-Day4-Week4, Month2

*Backup Tapes/Disks should be replaced annually.*

## Upgrades

When upgrading to the latest version of **AlphaCAM**, existing data files stored in Licomdat and Licomdir will NOT be affected.

If you wish the installation to install data files from the CD, it is necessary to rename the required folder located in the Licomdat and Licomdir folders.

e.g.

To install the latest 3dtutor from the CD, rename the 3dtutor folder in Licomdir to 3dtutor98 before installing **AlphaCAM**.

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## Configurations

AlphaCAM configurations are stored in the system registry file.

On computers that have Windows™ set up for different users to use different desktops a separate Licom System registry entry is created for each user. This allows each user to configure **AlphaCAM** to his/her own preferences.

Advanced modules of **AlphaCAM** allow user configuration of the standard toolbars and facilities to create a user defined toolbar.

Additional Menus/Menu Items may be configured using the **AlphaCAM** API.

API scripts can be created in advanced modules using the integral VBA™ editor. Standard and Basic modules can only utilise API scripts provided by your supplier or Licom.

The **Utils | Add ins** menu allows access to additional system macros. Some of the macros are available free and others can be bought. The extra cost options can be tried out for 10 **AlphaCAM** sessions, free, after which a key must be purchased if you require to continue using the option.

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## Graphics Module Configuration Options

The number of options the user can configure will depend on the system level. The configuration options are accessed through:

**FILE | Configure | Button Bars...**  
**General...**  
**System Folders...**

### Button Bars...

This option allows the button bars to be switched on and off. In the advanced level the user is allowed to modify button bars: i.e. To add and remove buttons. The button bar configuration also allows the user to set the position of the Command Prompt Line.

### System Folders...

This option allows the user to set the default location of the system folders, for example Licomdat and Licomdir. It also allows the user to specify the default location of the **AlphaCAM** standard macros.

### General

The general configuration allows the setting of several options.

#### Settings

This allows the configuration of the following:

Number of Undos	This sets the number of actions you can undo during the current session.
Default Font	This is the font used for text in imported files.
Auto Save Interval	How frequently the current job is backed up to the autosave folder.
Number of recent files	The number of file names visible at the bottom of the File Menu

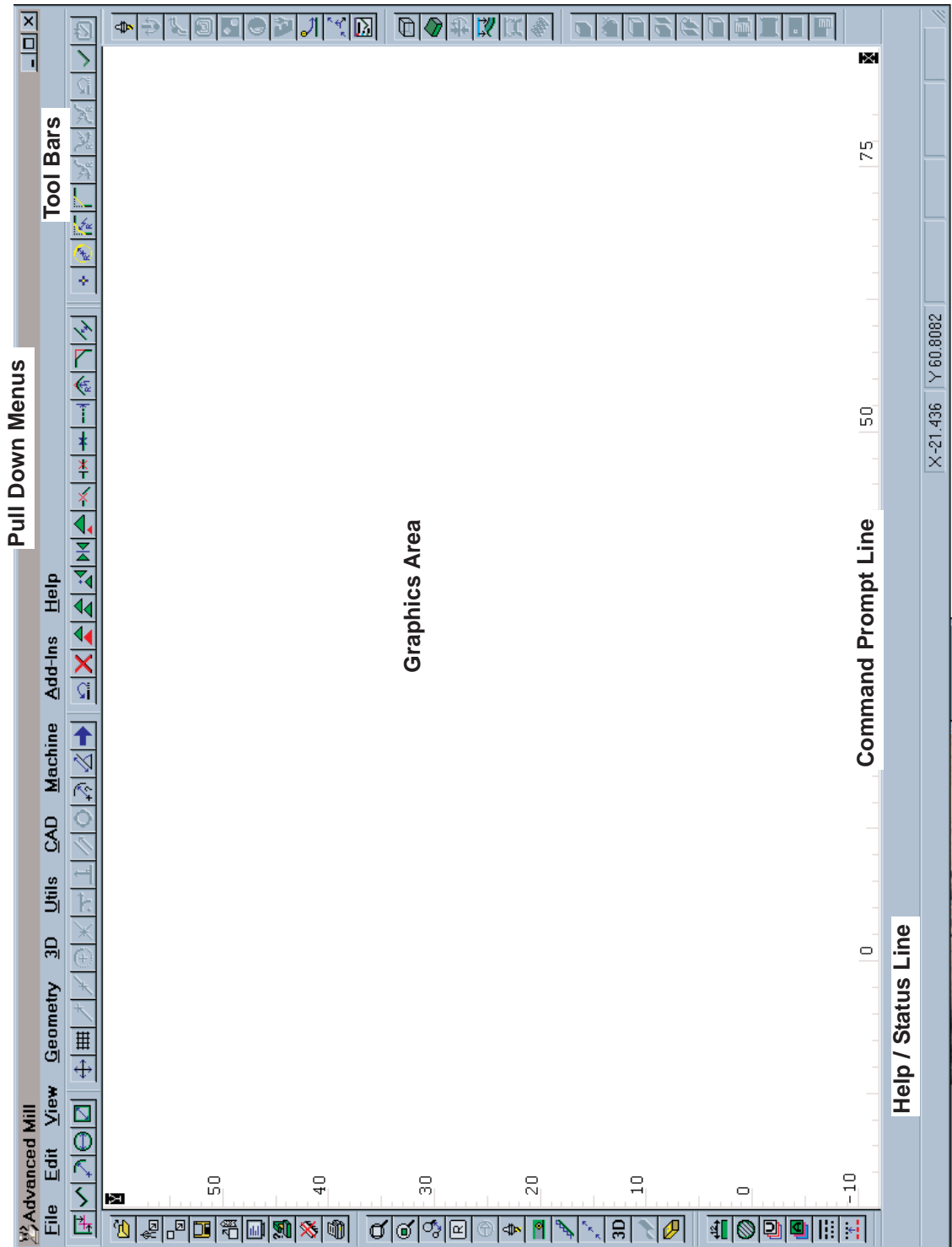
#### Geometry

This setting allows the user to specify the direction in which circles are drawn and which position they are drawn from.

#### Line Widths

Line Widths are used when printing directly from a graphics module. This option allows the user to specify three line widths: thin, normal, and thick. These line widths can be applied to Geometry, Dimension, and Construction elements.

# Graphic Module Screen Layout



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## AlphaEDIT Configuration Options

The configuration options are accessed through:

**FILE | Configure | DNC/RS232...**

**Editor...**

**Font...**

**File...**

**Terminal...**


**Portadisk...**

**Printer...**

### **DNC/RS232...**

This option allows the user to set up the machine tool communication connections through the serial ports COM1, COM2 etc.

#### **Editor...**

This option allows the user to set the way the editor works, the use of colours and font case, how the  key works, etc.

#### **Font...**

This option sets the display font used in the editor.

#### **File...**

This option sets the location of Licomdat and Licomdir.

#### **Terminal...**

Terminal Mode uses RS232 I/O to connect to any active device in real time, for example another computer, or an old controller.

#### **Portadisk...**

This option sets how the program will be manipulated as it is copied to a floppy disk or other folder, so that it may be used by another DNC system.

#### **Printer...**

This sets options for files that are sent to a printer



## EDIT Screen Layout

AlphaEDIT - C:\LICOMDIR\SCRATCH\Mill Simple Shape NC Program.anc

File Edit View Format Utils Comms Tool Bars Help

C:\LICOMDIR\SCRATCH\Mill Simple Shape NC Pro...

Operation List POST: Alpha Standard 3 ax Mi

OP 1 FINISH PASS TOOL 1 FLAT 10MM 3F EC  
EFFECTIVE DIAMETER 10

OP 2 DRILL HOLES TOOL 32 DRILL - 10MM DI  
TOOL DIAMETER 10, HOLE DIAMETERS 10 - 2  
Feed Distance: 50 Time for OP 2: 0m 2  
FINISH PASS TOOL 2 FLAT - 5MM  
EFFECTIVE DIAMETER 5  
Feed Distance: 72.3 Time for OP 3: 0m

Total Feed Distance ..... 6  
Tool Change Time ..... 0m  
Total Time ..... 4m

Material: Mild Steel Roughing  
Use Emulsion Coolant

START  
'(MILL SIMPLE SHAPE NC PROGRAM)

N10 (PROGRAM PRODUCED - 17 MAY 98)  
N20 G90 G71  
N30 G40 G80  
'(OP 1 FINISH PASS TOOL 1 FLAT 10MM 3F E  
'(EFFECTIVE DIAMETER 10)  
N40 T0101 M03 'Select tool and offset  
N50 S1600 H01 M06 'Next tool is 32, Next  
N60 G0 X-41.787 Y95.373

C:\LICOMDATA\POSTS.ALPA\Fanuc 15-16 MB 5-Axis... -

HEADER

Machine : WILLEMIN W408  
Control : FANUC 15-16 MB  
Database Name: MM  
Axes Used : XYZCB  
Coord System : Absolute  
Z-Axis : Vertical  
Contact :  
Tel :  
Fax :  
Dealer Name : A.HARFIELD  
Post Author : 24 AUGUST 1999  
Ver 1 Date : Has \$526 set to 0 = break arcs,  
Notes :  
Last Edit :

Editing Windows

\$5 \$STORE, \$RUN and \$RECALL - See manual App  
\$10 File LEADING lines  
\$LET PLANE\_CHANGE = 0  
%  
\$12 Main Program LEADING lines  
:[PROGRAM] ([FNM])  
G17 G40 G54 G80 G90  
\$15 Main Program TRAILING lines  
M30  
\$17 File TRAILING Lines  
%  
\$20 Rapid Move in XY (MILL/ROUTER/FLAME/LASER)

Help / Status Line

Size 2486, Ln1, Col 1

NUM

Ready



## DNC/RS232 Settings

Controller Name																
Machine Tool																
Device Name																
Port	COM ____	Parity	Odd	Even	None	Baud										
Data Bits	7	Stop Bits	1	Hardware Handshake	Software Handshake	Data Type	ASCII									
	8		2				EIA									
<b>Codes</b>																
Before Sending Program																
After Sending Program																
Before Receiving Program																
After Receiving Program																
End of Line Codes	CR+LF	CR	LF	?												
<b>Format</b>																
Send Spaces				Yes	No	Send Blank Lines				Yes	No					
Wait for Xon Before TxD				Yes	No	Accept & Store Ctrl Codes				Yes	No					
Accept & Store Nulls				Yes	No	Use ACK-NAK Protocol				Yes	No					

### Cable Configuration

Computer	M	F	9	25	Machine	M	F	9	25
----------	---	---	---	----	---------	---	---	---	----

### Computer

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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### Machine Tool

### Cable Configuration

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	8		2				EIA				
<b>Codes</b>											
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After Sending Program											
Before Receiving Program											
After Receiving Program											
End of Line Codes	CR+LF	CR	LF	?							
<b>Format</b>											
Send Spaces				Yes	No	Send Blank Lines				Yes	No
Wait for Xon Before TxD				Yes	No	Accept & Store Ctrl Codes				Yes	No
Accept & Store Nulls				Yes	No	Use ACK-NAK Protocol				Yes	No

### Cable Configuration

Computer	M	F	9	25	Machine	M	F	9	25
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### Computer

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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<b>Codes</b>																
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After Sending Program																
Before Receiving Program																
After Receiving Program																
End of Line Codes		CR+LF	CR	LF	?											
<b>Format</b>																
Send Spaces				Yes	No	Send Blank Lines				Yes	No					
Wait for Xon Before TxD				Yes	No	Accept & Store Ctrl Codes				Yes	No					
Accept & Store Nulls				Yes	No	Use ACK-NAK Protocol				Yes	No					

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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### Machine Tool





