Inplot

i-Logic
Software

Inplot Interactive Editor-Plotter
Reference Manual
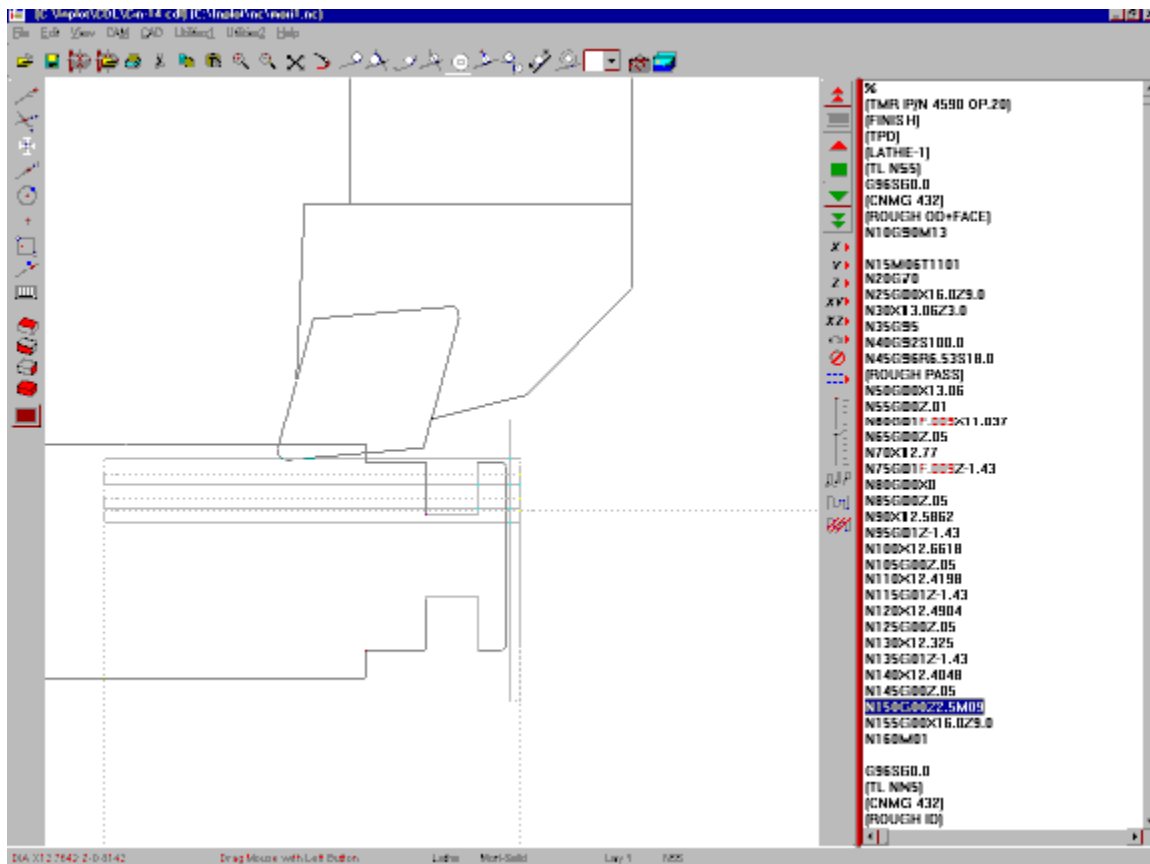
Agreement

i-Logic Software — Software License Agreement

PLEASE READ THIS LICENCE CAREFULLY BEFORE USING THE INPLOT SOFTWARE. BY USING THE INPLOT SOFTWARE, YOU AGREE TO BECOME BOUND BY THE TERMS OF THIS LICENCE. IF YOU DO NOT AGREE TO THE TERMS OF THIS LICENCE, DO NOT USE THE INPLOT SOFTWARE.

The Inplot software ("Software") is licensed, not sold, to you by i-Logic Software ("i-Logic") for use only under the terms of this License, and i-Logic reserves any rights not expressly granted to you. You own the media on which the Software is recorded, but i-Logic and its licensors retain ownership of the software itself.

1. **License**. This License allows you to:

(a) Use one copy of the Software on a single computer at a time. To "use" the software means that the software is either loaded in the temporary memory (i.e. RAM) of a computer or installed on the permanent memory of a computer (i.e. hard disk, CD ROM, etc.). You may install the software on a common storage device which is accessible by multiple computers, provided that if more computers have access to the common storage device than the number of licensed copies of the Software, you must have some software mechanism which locks-out any concurrent users in excess of the number of licensed copies of the Software (an additional license is not needed for the one copy of Software installed on the common storage device accessed by multiple computers).

(b) Make one copy of the Software in machine readable form solely for backup purposes. Additionally, only so long as the Software is installed only on the permanent memory of a single desktop computer which is not accessible by multiple computers and that single desktop computer is used by one user for at least 80% of the time the computer is in use, that same user may also make a copy of the software to use on a portable or home computer which is primarily used by such user. As an express condition of this License, you must reproduce on each copy any copyright notice or other proprietary notice that is on the original copy supplied by i-Logic.

(c) Permanently transfer all your rights under this license to another party by providing to such party all copies of the Software licensed under this License together with a copy of this License and the accompanying written materials, provided that the other party reads and agrees to accept the terms and conditions of this License.

2. **Restrictions**. The Software contains trade secrets in its human perceivable form and, to protect them you may not REVERSE ENGINEER, DECOMPILE, DISASSEMBLE OR OTHERWISE REDUCE THE SOFTWARE TO ANY HUMAN PERCIEVABLE FORM. YOU MAY NOT MODIFY, ADAPT, TRANSLATE, RENT, LEASE, LOAD OR CREATE DERIVITIVE WORKS BASED UPON THE SOFTWARE OR ANY PART THEREOF.

3. **Termination**. This License is effective until terminated. This License will terminate immediately without notice from i-Logic or judicial resolution if you fail to comply with any provision of this License. Upon such termination you must destroy the Software, all accompanying written materials and all copies thereof, and Sections 5,6 and 7 will survive any termination.

4. **Export Law Assurances**. You agree that neither the Software nor any direct product thereof is being or will be shipped, transferred or re-exported, directly or indirectly, into any country prohibited by the United States Export Administration Act and the regulations thereunder or will be used for any purpose prohibited by the Act.

5. **Limited Warranty**. i-Logic warrants for a period of ninety (90) days from your date of purchase that the Software provided by i-Logic will substantially conform to i-Logic's published specifications for the Software. i-Logic's entire liability and your sole and exclusive remedy for any breech of the foregoing limited warranty   will be, at i-Logic's option, replacement of the media (if any), refund of the purchase price (based on fair market value of the Software) or repair or replacement of the software.

THIS LIMITED WARRANTY IS THE ONLY WARRANTY PROVIDED BY I-LOGIC AND I-LOGIC AND ITS LICENSORS EXPRESSLY DISCLAIM ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO

IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WITH REGARD TO THE SOFTWARE AND ACCOMPNYING WRITTEN MATERIALS. BECAUSE SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF IMPLIED WARRANTIES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

6. **Limitations of Remedies and Damages**. IN NO EVENT WILL I-LOGIC, PARENT OR SUBSIDIARIES OR ANY OF THE LICENSORS, DIRECTORS, OFFICERS, EMPLOYEES OR AFFLIATES OF ANY OF THE FOREGOING BE LIABLE TO YOU FOR ANY CONSEQUENTIAL, INCIDENTAL, INDIRECT OR SPECIAL DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION AND THE LIKE), WHETHER FORSEEABLE OR UNFORSEEABLE, ARISING OUT OF THE USE OR INABILITY TO USE THE SOFTWARE OR ACCOMPANYING WRITTEN MATERIALS, REGARDLESS OF THE BASIS OF THE CLAIM AND EVEN IF I-LOGIC OR AN I-LOGIC REPRESENTITIVE HAS BEEN ADVISED OF THE POSIBILITY OF SUCH DAMAGE. I-Logic's liability to you for direct damages for any cause whatsoever, and regardless of the form of action, will be limited to the money paid for the Software (based on fair market value of the Software) that caused the damages.

   THIS LIMITATION WILL NOT APPLY IN CASE OF PERSONAL INJURY ONLY WHERE AND TO THE EXTENT THAT APPLICABLE LAW REQUIES SUCH LIABILITY. BECAUSE SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

7. **General**. This License will be construed under the laws of the State of Connecticut, except for that body of law dealing with conflicts of law. If any provision of this License shall be held by a court of competent jurisdiction to be contrary to law, that provision will be enforced to the maximum extent permissible, and the remaining provisions of this License will remain in full force and effect. If you are a U.S. Government user then the Software is provided with "RESTRICTED RIGHTS" as set forth in subparagraphs (c) (1) and (2) of the Commercial Computer Software-Restricted Rights clause at FAR 52.227-19 or subparagraph (c) (1)(iii) of the Rights of Technical Data and Computer Software clause at DFARS 252.277-7013, as applicable. *Manufacturer: I-Logic Software, 655 Talcottville Rd. #116 Vernon CT 06066*

Contents

i-Logic
Software

_____

Installation

Put Setup disk in drive.

Run 'Setup.exe' on the disk.

Setup program will automatically install Inplot onto your hard drive. C:\Inplot is the default installation directory. If you want to install it to a different directory you will have the opportunity to enter the path name.

The install program will copy the files on the disk to the desired subdirectories.

When you start the program a dialog box will ask for the registration code. Enter registration code into the box and the press the *Register* button. This is in the 'About' box from the main help menu.

See also: Register

_____

Productivity Features of Inplot
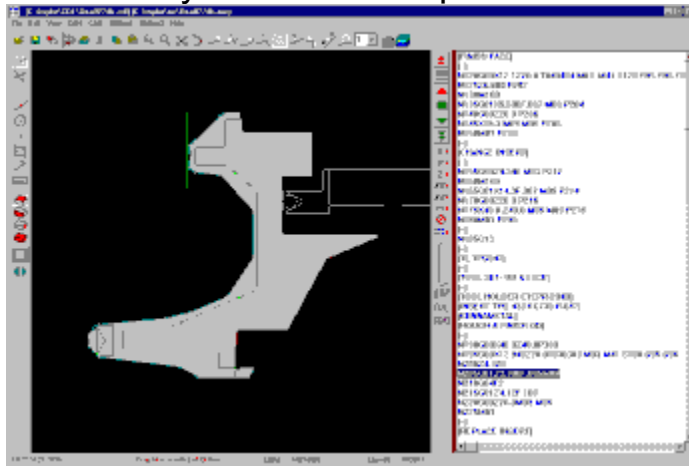
Edit And Change Your NC Code With These Built-in Functions:

1.   Shift Values

2.   Change Program to a Different Format

3.   Rotate Around a Point

4.   Scale Up or Down

5.   Switch Addresses

6.   Put the Addresses in a Particular Order

7.   Find Machining and Cycle Time

8.   Break G02 and G03 into Quadrants

9.   Highlight in Color Certain Addresses

10. Print the CAD Drawing at a Certain Exact Scale

11. Print File in Multiple Columns on Page

12. Print Tool Pictures Along With NC Code

13. Save Plot Drawing to Geometry or Bitmap

14. Merge Other Files Into Editor

15. Make and Run a Script to Go Through a List of Editing Commands

16. Multiple User Defined Machine Configurations

17. Animated Tool Path Plotting

18. For Both Lathe and Mill

19. Tool Directory

20. Lathe Plotting Can be Shown in Horizontal or Vertical Position

21. Get Tool Tangent Coordinates by Picking an Entity in the CAD File

22. Get G02, G03 Moves by Picking an Entity in the CAD File

23. Change Values by Finding Values Instead of Strings

_____
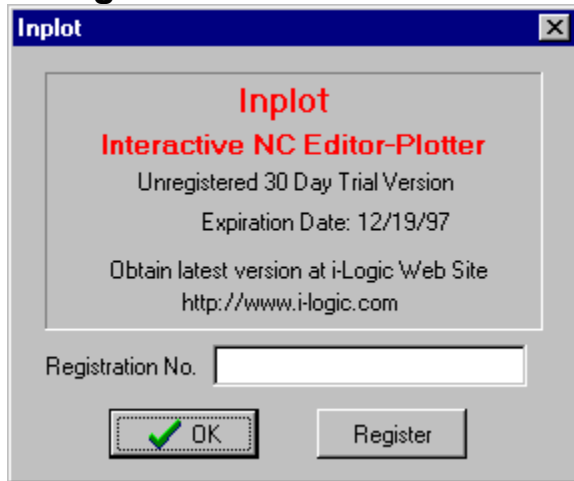
Register

If a valid registration number has not been entered, the software will not function after a trial period expires.

1. After starting Inplot, choose 'About' on the help menu. Enter the Registration number into the space provided. Then press 'Register'. If the correct number has been entered, the dialog box will close and when you open it again it will say 'Registered'.

2. You can download any latest update of the program off the Internet at any time, but you will have to take one precaution. The file that tells the software you are registered is 'inplot.dat' that is in the Inplot install directory on your computer. You must keep this original 'inplot.dat' file that comes with your registration. This is the only one that recognizes your registration number.

3. When you download updates from the Internet, don't use any 'inplot.dat' that comes with files on the Internet. Those are only good for a trial period.

_____

Menu Commands

Main Menu

[File](#)

[Edit](#)

[View](#)

[CAM](#)

[CAD](#)

[Utilities](#)

_____

File Menu

PLOT WINDOW>

Load CAD

Save CAD

Save CAD as

Merge

Print CAD

Print Bitmap

To Clipboard

New

Get Tool

Save Tool

Save Tool As

EDIT WINDOW>

Load NC

Save NC

Save NC As

Save Select

Merge

Print NC

Print W/Tools

Set Printer...

Script...

Keyboard Macro

Recent Files

Configuration...

Exit

Formats...

_____

Load Cad

Enter filename of CAD drawing to load. Entry box will show a list of files with DXF ,CDL or IGS file extension depending on which type is currently set.

Default Directories are set with the Directories menu item and can be saved with the Settings menu item.

See also:

Cad Type

Orientation Horizontal

Orientation Vertical

_____

Save CAD

Will save the current drawing that is in the plot window to the current filename. If it is new and does not have a name yet, the Save As dialog box will come up to enter a filename into.

The drawing will be saved in the format that CAD Type menu item is currently set at.

_____

Save CAD As

Dialog Box asks for name to save the current drawing as.

It will be saved in the CAD format that is currently set in CAD Type.

_____

Merge CAD

Loads another CAD file into the plot window without deleting current drawing.

_____

Print CAD

Will send the current drawing window to the printer, clipped to the same area as displayed in the window. The tool path will not be printed unless it was saved with the Record Tool Path menu item.

See also: Printer Setup, Print Bitmap.

_____

To Clipboard

You can send the plot display window to the Windows clipboard for pasting into other Windows applications. Inplot cannot paste any drawings from the clipboard into the plot window

WMF-All

Sends the CAD drawing window to the Windows Clipboard in Windows metafile format, clipped to the same area as displayed in the window.

WMF-Group

Same as All but only outputs a chosen Group of entities.

Bitmap

Sends the CAD drawing window to the Windows Clipboard as a Bitmap of the entire plot window.

_____

CAD New

Deletes all geometry elements in memory. If geometry has been modified, Dialog Box will ask if you want to save file.

_____

Get Tool

Loads CAD drawing of tool for changing or checking.

Opens file dialog box with listing from default tool directory .

Tool files have the .CDL file extension and are always saved in the CADL format.

_____

Save Tool

Saves the current drawing in the plot window to the current file name to be used as a lathe tool. If there is no current file name, then Dialog Box will ask for file name.

Dialog box asks for information about the lathe insert . This information is used for showing the tool during plotting and the CAM functions.

Tool files have the .CDL file extension and are always saved in the CADL format.

_____

Save Tool As

Dialog Box asks for filename to save current tool drawing to.

Dialog box asks for information about the lathe insert. This information is used for showing the tool during plotting and the CAM functions.

Tool files have the .CDL file extension and are always saved in the CADL format.

_____

Load NC

Enter filename of NC file to load. Any ASCII text file can be loaded. The editor can hold megabytes of text, according to how much memory the computer has.

Dialog box will show a list of files with default .NC file extension. The default file extension can be set in the Directories menu item.

Default Directories are set with the Directories menu item and can be saved with the Save Current Settings menu item.

_____

Save NC

Will save the current NC file drawing that is in the edit window to the current filename. If it is new and does not have a name yet, the Save As dialog box will come up to enter a filename.

_____

Save NC As

Saves the text that is in the editor to a file.

Dialog box appears for entering new filename.

If filename already exist, message box will ask if you want to overwrite the file.

_____

Save Selection

This allows you to save only a selected portion of the edit window to a another file.

If there is more than one line selected int he edit window, the Save As dialog box appears for the file name to save to.

_____

Merge NC

Inserts a text file into edit window at cursor location.

Dialog box asks for name of file.

_____

Print NC

Send current edit window to the printer. If a portion of the file is selected then only that selection will be printed, otherwise, the entire file is printed.

Left Margin on printing is controlled by 'PrintMargin' in Machine INI file.

See also: Printer Setup

Print Columns

_____

Print With Tools

```
(TMR P/N 4590 OP.20)        N455G1X60975Z-1340          N545G0X61763
(FINISH)                    N460G3X606Z-16I606K-1340    N550G0Z0
(TPD)                       N465G1X59079                N555G1F70X60450
%                           N470X58849Z-1853            N560G0Z409
(TDT 3/19/98, 7:36:55 AM)   N475Z-14000                 N565X60884
(LATHE-1)                   N480X58444                  N570G1F70X61525Z-230
(TL N55)                    N485G0Z25000M09             N575Z-14000
                            N490G0X80000Z90000          N580X61738
                            N495M00                     N585G0Z500
                                                        N590G0Z25000M09
                                                        N595G0X80000Z90000
                            G96S600                     N600M01
                            (TL A)
G96S600                                                 G96S600
(CNMG 432)                                              (TL H19)
(ROUGH OD+FACE)
N10G90M13
N15M06T1101
N20G70
```

Sends the text in the edit window to the printer and activates ability to add pictures to the printed output.

When there is a Comment code of "(TL filename" ,INPLOT will read the tool file of that name and send it to the printer, printing it on the right hand side of the column.

The file can be printed in 1,2,3, or 4 columns on a page with the text and pictures scaled to fit. 4 columns prints tiny but is handy for checking or reference.

Tool directory path is set in the Set Directories menu item.

If a portion of the file is selected then only that selection will be printed, otherwise, the entire file is sent.

Orientation of the pictures change according to whether Orientation Horz or Orientation Vert is set.
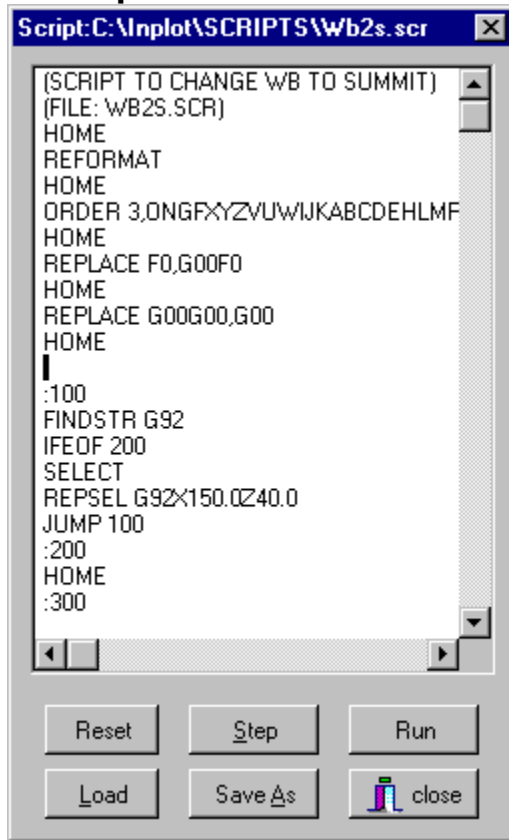
Printing in progress can be aborted by pressing CANCEL in the dialog box that is displayed during printing.

See also: Printer Setup, Print NC, Print Columns

_____

Set Printer

Opens the Printer Settings dialog box. For changing the printer and printer settings.

_____

Script

Opens the Script Window.

A script file is a file containing a list of commands that will make changes to the file in the edit window.

Press Load button to load an existing script file or type a list of commands into the script window and save them to a new script file.

Press Step button to execute one command at a time.

Press Run button to execute entire script.

Script Commands:

ADD, address, value

If the line at the cursor position does not have this address, the address and value are added to the end. If the address already exists, the value is changed.

ASPACE

Adds spaces between addresses in the selected text.

BACK, number of lines

Moves cursor number of lines back in editor. If no number given then moves one line.

BREAKARC

Breaks arcs in the selected text so they will not go over one quadrant at a time. See Break Arcs.

CHAIN, script filename

Runs another script file at this point. When that secondary script file is through executing, the main script in the window continues processing with the next line. The default script path and extension are used if none are given.

Ex: CHAIN,MCODE

will load the script 'mcode.scr' and run it, then reload the main script and continue from the next line. Up to five levels of CHAIN can be used. Variables are global over all chained scripts. Jump numbers are local.

CHANGEV, address, existing value, new value

If selected text has this address with this existing value , then the existing value will be changed to the new value.

Special characters '<', '>', '*' will make special changes:

changev X,3.0,9.0   will change all X3.0   to X9.0

changev X<,3.0,9.0   will change X addresses if they are less than 3.0 to X9.0

changev X>,3.0,9.0   will change X addresses if they more than 3.0 to X9.0

changev X*,0,9.0   will change X of any value to X9.0

changev *,3.0,9.0   will change any address that has 3.0 to 9.0

If multiple lines are selected only those lines will be changed. If no lines are selected, file will be changed from cursor location to end of file.

COPY

Copies the selected text to the clipboard, so it can be pasted somewhere else later.

COMMENT

Places comment brackets around each line in the selected text.

CUT

Puts the selected text into the clipboard and deletes it from the editor. It can then be pasted into a different location.

DELETE

Deletes the selected text from the editor.

DELINE

Deletes current line from editor.

DELSTR, string

If 'string' is found on the current line, that substring is deleted from the line.

END

Moves the cursor to the last line in the editor.

EXIT

Stops executing script file. When chaining, the subscript will exit at this point.

FINDSTR, text string [, comments (0 or 1)]

Starting at cursor position searches lines and stops at next occurrence of text string. The text string is highlighted within the line. If optional third parameter is 1 then it will look in comments, otherwise it skips comments.

FINDVAL, address, value

Starting at cursor position searches lines and stops at next occurrence of the address with that value. This function searches for the actual value according to the current format setting no matter what the actual string representation is. The address and value is highlighted within the line.

FORWARD, number of lines

Moves cursor number of lines forward in editor. If no number given then moves one line.

FRONT, string

Adds the string to the front of the current line.

GOBLOCK, block number

Starts search from beginning of file and stops at first occurrence of the 'N' address with the block number.

GOSUB, jump number

Calls a subroutine. Works the same as JUMP, but will return when RSUB is found. The script jumps to the line in the script window that has this jump number. A jump number is in the format of a colon and a number, without any spaces, as in :100   (on a line by itself)

Script will continue, but when RSUB is found, the script will jump back to the line after the last gosub call.

If jump line is not found then an error message appears.

Ex:

GOSUB 100 (has no colon)

HOME

Moves the cursor to the first line in the editor.

IF, expression, (jump or gosub or pause)

The expression is in brackets as in: [#1=3] or [#1<3] or [#1>3] or [#1<>3]. If expression is true then the script will goto JUMP number in 'jump'. You can use the word 'PAUSE' instead of a number and the script will stop running at that point if expression is true.

Ex:

IF,[#1=#2],100   (jumps to jumpnumber 100)

IF,[#1=#2],GOSUB100   (jumps to jumpnumber 100 and will return when hits RSUB)

IFEOF, jump or gosub

Checks if the cursor is at the end of the editor. If it is, script will goto the JUMP number in jump.

Ex:

IFEOF,100   (jumps to jumpnumber 100 if at last line of editor)

IFEOF,GOSUB100   (jumps to jumpnumber 100 if at last line in editor and returns when hits RSUB)

IFFIND, string, jump or gosub [, comments (0 or 1)]

Checks the current line in the editor for this string. If it is found then the script will jump to the jump number. If optional third parameter is 1 then it will look in comments, otherwise it skips comments.

Ex:

IFFIND,X,100   (if find the character 'X' then jump to 100)

IFFIND,X,GOSUB100

IFFIND,(,100,1   (if finds the character '(' on the line then jump to 100. look in lines including comments)

INSERT, text string

Inserts text string above the line that the cursor is on. The semicolon ';' character will add a carriage return/linefeed, so 'G00X1.0;G01X2.0' will insert two lines.

ITEM, item number, address, variable number

When there is more than one of the same address on a line in the editor, this command can be used to put a certain one in a variable. You can use NUMBEROF to find the number of same addresses and then use ITEM to read each of them into a variable.

For example, if the line has multiple M codes: N0200M09M05M19

ITEM,3,M,1 will put the value of the third M code into variable #1

INPUT, address

Inserts the tool position values into the current line, like CAM Buttons.

INPUT X, or INPUT Y, or INPUT Z, or INPUT XY, or INPUT XZ

JUMP, jump number

The script jumps to the line in the script window that has this jump number. A jump number is in the format of a colon and a number, without any spaces, as in :100   (on a line by itself)

JUMP 100 (has no colon)

If jump line is not found then an error message appears.

MARKER, marker number

Puts current line number in memory so it can be returned to later. Return to the line with RETURN. There are 10 marker numbers available.

MERGE, filename

Will merge the file into the editor at the current position.

MESSAGE, string

Will stop and display message box. Click OK to continue.

NUMBEROF, address

Puts the number of times this address occurs in the current line in the editor. You can use this with ITEM to get the values of multiple same addresses. Can be used only with setting a variable.

#1=NUMBEROF,M   will put the number of times the address M appears in the line.

OFFSET, address, value

If the address exists in the selected text, the value is added to the existing value. If cursor is at top line then all text in the edit window will be processed.

ORDER, [order string]

Puts the addresses on each line in the selected text into the order specified by order string. Order string is a string of addresses. If no order string is given, the current default setting is used.

PASTE

Put the text that is in the clipboard into the editor at the cursor position.

PAUSE

The script stops running when the pause command if found. After it stops at this line, you can use the step button to step through or continue with the run button.

PLOT, string

Sends this string of characters to Inplot to be processed the same as if Inplot was reading the line from the editor. You can include variables in the string and they will be filled in with the current script variables. If the string is "$" then the current line in the editor is plotted.

With this function you can create a pre-processing script that will take NC codes from a non Fanuc control that Inplot does not understand and change them to something that can be plotted.

Example: PLOT,G#5X#1Y#2

or PLOT,$

See Also: Pre-Processing Script

RBLANK

Removes blank lines from selected text.

REAR, string

Adds the string to the end of the current line.

REFORMAT, [from format number, to format number]

Changes the format of the address values in the selected text. Format number is the number of the machine displayed on the main menu. If no format numbers are given, text is reformatted to the current format number.

RENUMBER, [start number], [increment], [existing blocks only (0 or 1)]

If lines are selected, only the selection will be renumbered. If cursor is at first line in file, the whole file is renumbered. If start number and increment is not given the current default settings are used.

REPLACE, existing text string, new text string

If selected text has this existing text string, then it is changed to the new text string. If cursor is at top line then all text in the edit window will be processed. New text can contain multiple lines by including two semi colons (;;) as a separator.

Example: `REPLACE,P,;;N1P`

`will change N1000G00X2.0Y3.1P99`

`to:`

`N1000G00X2.0Y3.1`

`N1P99`

REPSEL, new text

Replaces the selected text with the new text. Lines in the editor can be first selected with SELECT, FINDSTR or FINDVAL.

RETURN, marker number

Goes to line that was put into memory with MARKER.

REMOVE, address, [confirm(0 or 1)]

Will remove the address and its value in the selected text. If cursor is at top line then all text in the edit window will be processed. If address is the start comment character, the entire comment will be removed from the line.

REVERSE

Reverses the order of the lines in the selected text. Some lines of text must be selected.

ROTATE, angle, axis

Rotates the NC code in the selected lines in the editor. Rotates around X0, Y0.

RSPACE

Removes spaces between the addresses in the selected text.

RSUB

Return from subroutine. Returns to last call of GOSUB. Script continues from next line after the GOSUB call.

SAVEVAR, address, var number

If the current line contains this address then the value of this address is put into a variable that can be used later. Var number is the number of the variable into which the value will be loaded. There are 199 script variables available: #1 through #199. These names can be used in the script file any place a number parameter is required.

Ex: SAVEVAR,X,4

Puts the X value of the editor current line into variable #4

SCALE, address, value

If the address exists in the selected text, the existing value is multiplied by this value. If cursor is at top line then all text in the edit window will be processed.

SELECT, [start line, end line]

Selects text from start line to end line. Cursor is at end line. Use this to select a section of text to perform the next operation on. If no start line and end line is given, then line the cursor is on is selected.

STRIP, strip string

Removes redundant values in the selected text. Strip string is a string of addresses to check. This is for removing extra feeds, G codes, etc. that are not needed in the program.

SWITCH, address1, address2, [reverse1(0 or 1), reverse2(0 or 1)]

If the two addresses exist in the selected text, the two values will be switched with each other. If reverse1 or reverse2 equals 1 then the sing on that address will be reversed.

SYNTAX

Checks the editor text for errors. See Check Syntax.

UNCOMMENT

Removes the comment brackets from around each line in the selected text.

Variable=value

Assignment of variable. Left side is a script variable #1 to #199. Right side is value.

LINENO is the current line number. STARTSEL is the start selection line number. ENDSEL is the end selection line number. LENGTH is the number of characters in the current line. Example:

#1=STARTSEL

#2=LENGTH

You can have a variable variable number as in:

#1=5

#[#1]=3

 This will put the value 3 into #5

***

Note:

Comma after the command can be a space instead.

Command names are not case sensitive.

Address is any character.

Value is any number or variable.

Number is a value that will be rounded off to the nearest integer.

String is any string of characters.

Comments can be added to the script with parentheses '(' at the beginning on a line by itself or at the end of a command

Do not put comments on same line as FINDSTR, REMOVE, REPSEL, INSERT, PLOT, IFFIND, since these commands can use the comment character in the parameter values.

You can stop the running of the script by pressing the right mouse button or the ESC key.

***
Example of loop that inserts G00 after the next 5 lines.
(set variable to 1)
#1=1
(start of loop)
:100
(insert after line at cursor position. Cursor goes to next line)
insert G00
(increment variable)
#1=[#1+1]
(check if variable is greater than 5. If it is then jump to :200. Which is out of loop)
if [#1>5],200
(jump back to start of loop)
jump 100
:200

Supports functions: ROUND, SIN, COS,   ATAN, SQRT, ABS, EXP, LN, FIX
Function must be surrounded by brackets:
#1=[atan[#2]+1]
#1=[round[#1]]
if [[round[#1]]>2],400

(file:block delete.scr)
(script to put block deletes)
(in front of selected lines)
(skips comments)
#1=startsel
#2=endsel

```
#3=#1
select #1
:100
iffind /, 300
iffind (,300,1
front /
:300
forward
#3=lineno
if [#3>#2] ,200
#3=[#3+1]
jump 100
:200
select #1,#2
```

_____

Exit

Ends program. If CAD file or NC file have been changed dialog box will ask if you want to save the new files before ending the program.
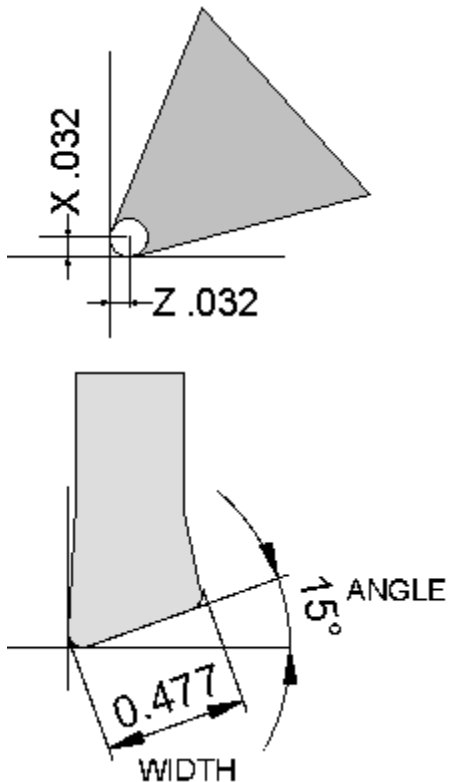
_____

Tool Nose Info

Lathe Toolnose Info   ☒

Center X: `.031`   Center Z: `.031`

Radius: `.031`   Width: `.0`

Angle of Width: `.0`   Orientation: `1`

Comment:

[   ]

✔ OK   ✘ Cancel   ? Help

Tool Nose Info

Enter Lathe tool nose information. This dialog box shows up when you pick 'Save Tool' on the CAD-File menu. These are only used to obtain toolpaths from the CAM functions.

Center X and **Center Z** are the distance from the center of the radius to the programmed point. In this example, the insert is set in this position. The radius is .032, so enter .032 in center X and .032 in center Z.

Width - The tool insert can have a width. Grooving and other inserts that can cut with both sides can be used in Inplot. If you enter the width from the outside edges (both corners need the same radius),

and the angle from one to the other. Inplot can put the tool tangent either side, just by picking either side of the line. To adjust how the tool goes tangent to the element, see Tool Tangent.

Angle - If the tool has a width, enter the angle going from the side of the radius that you entered to the other side of the width.
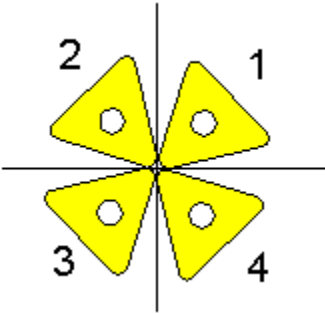
ORIENTATION

Enter the number of the quadrant that the tool is set and used in.

See Also: Tool Tangent

_____

Printer Setup

Displays a printer setup dialog box belonging to the currently installed printer. Use this to change printout of CAD and NC to portrait or landscape orientation.

New Printers must be installed with the Windows Control Panel.

_____

Loading Machine Format settings

At the bottom of the FILE menu, the machine names of the available formats are listed. These names were found in each of the separate format files and placed on the main menu.

Picking the machine name on the menu will load that format file with the configuration and format information.

The currently loaded format has a checkmark next to the menu item.

Inplot finds these format files by looking in the initialization file INPLOT.INI

Configuration and format #1 is always loaded first when INPLOT starts unless program is started with parameters.

You make changes in any of the settings by choosing Configuration from the main File menu. To save the changes permanently to the format file, choose the Save button on the Configuration dialog box.

When loading the format entries, if no entries are found when Inplot looks for a value, a default value is used.

See also:

Configuration

Save Current Settings

Format

Machine Format File

Add New Machine Format

_____

Getting Started

[Load NC file](#)

[Load CAD](#)

[Auto button](#)

Edit Menu

[Undo](#)

[Redo](#)

[Cut](#)

[Copy](#)

[Paste](#)

[Select All](#)

[Delete](#)

[Font](#)

[New](#)

[Find Replace](#)

[Find Again](#)

Undo

Undo last delete, cut, or paste in the editor.

Shortcut Key = Cntrl-Z

_____

Redo

Redo the last delete, cut, or paste in the editor.

_____

Cut

Cut removes the currently <u>selected text</u> in editor and puts it into the clipboard.

Shortcut Key = Shift-Del or Cntl-X

_____

Copy

Copies currently selected text into clipboard.

Shortcut Key = Cntrl-Ins or Cntrl-C

_____

Paste

Paste the text that is in the clipboard into editor at cursor position.

Shortcut Key = Shift-Ins or Cntrl-V

_____

Select All

Select all text in editor. Used for transferring entire file to clipboard

Shortcut Key = Cntrl-A

_____

Delete

Delete

Deletes the currently <u>selected text</u> from the editor

Shortcut Key = Del

_____

Edit New

Deletes all text from editor. If text has been changed then dialog box will ask if you want to save current file.

_____

Font

Opens Font dialog box. Any font can be chosen for the editor. The font and style are saved with each Machine Format File and are automatically loaded at startup for that machine.

_____

Find-Replace

Find and Replace

Find:
```
M09
```

[Find]

Replace With:
```
M09
X-15.0
```

[Replace]

[Replace All]

[Goto Top]

☐ Include in Comments

[?]   [Close]
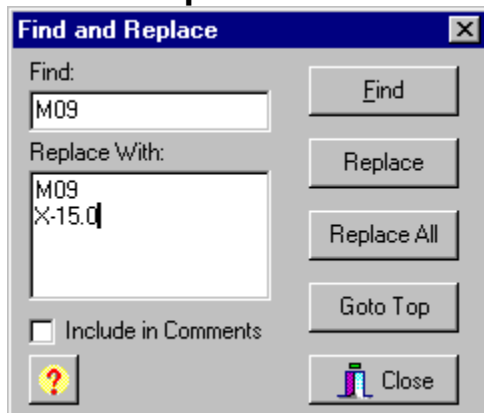
Replace

Searching

Dialog box asks for text string to search for in the editor. Search starts from cursor position.

Replacing

Dialog box asks for text string to search for and string to replace it with. The replace string can contain multiple lines.

Pressing 'Find' will find the next occurrence of find text.

Pressing 'Replace' will replace the highlighted text and then find the next occurrence of find text.

'Replace All' will replace all occurrences. If there is selected text, only the selected text is searched. If no text is selected the search begins at the cursor location.

Shortcut Key = F5

Search Again Shortcut Key = Alt-F5

_____

Find Again

Find Again

Finds next occurrence of string (from the cursor location) last entered into Find-Replace dialog.

Shortcut Key = Alt-F5

_____

View Menu

Zoom>

Zoom Window

Zoom All

Zoom Last

Zoom Half

Layers...

Solid

Redraw

Reset

Axis

Animation

_____

Zoom Window

Enlarge an area of the plot window. Make a box around area to enlarge by moving the mouse cursor to one corner, hold down the left mouse button, move mouse to opposite corner of box, release mouse button.

After zooming, the width of the window represented by the current scale is displayed on the prompt line.

Shortcut Key = F1

_____

Zoom All

Zooms and redraws the plot window to include the maximum dimensions of all the current CAD elements.

_____

Zoom Last

Zooms plot window to the previous zoom scale.

_____

Zoom Half

Zooms plot window to one half of current scale.

_____
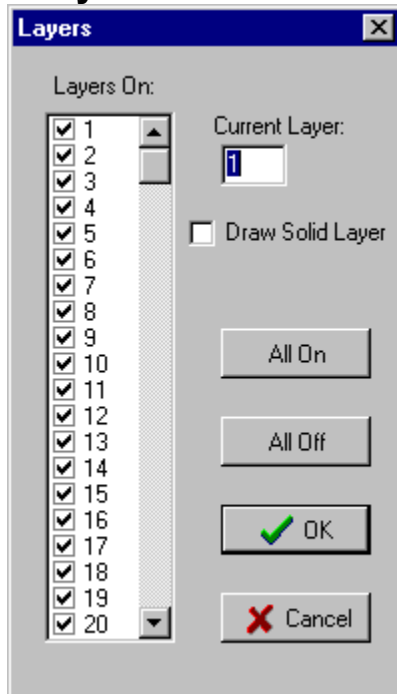
layers

Check boxes indicate which layers in the CAD drawing are displayed.

The SOLID layer is the layer on which you would draw the outline of the part stock boundary. The default SOLID layer is the same as the highest layer.

The Draw Solid Layer box is a shortcut for turning on and off   the solid layer so it can be used for drawing solids.

See Also: Solids , Load Cad

_____

Solids

Allows the drawing of the part to be filled in with color representing the stock boundary, for cutting away with the tools.

When this menu item is checked, INPLOT looks for an outline definition on the 'Solid' layer of the CAD file.

This definition consists of a set of points marking the outline of a filled polygon. The color of the fill will be the same as the color of the points

1. Load CAD file of part.

2. Set current layer to 'solid'.

3. Set current color to desired color.

4. Make points around the desired outline, creating a polygon.

The polygon will be automatically closed between the last point and the first point.

The points must be in order around the shape, or the filled polygon will not come out the right shape. It's possible that if you did a lot of deleting of elements, the outline points you created may not be saved in the right order in the data base. In this case, start over again by saving the CAD file and reloading it, then creating your points.

Changing the Solid Layer

The default solid layer is 254. If you want to change the layer that Inplot looks for points and circles to make solids from, follow this procedure:

You can set the layer that will be used for solids in each machine configuration.

1. On the Main Menu - 'File' choose the machine format at the bottom of menu.
2. On Main Menu – 'File' choose 'Configuration'.
3. Go to 'Tools' Page. Change number of Solid Layer. Press 'Save'.

See also: Solid Tool

_____

Redraw

Clears the plot window and redraws the CAD drawing. Any plotted tool path is erased unless it was made with Record Tool Path set on.

Shortcut Key = F3

_____

Reset

Clears the colors of the CAD drawing to their original. Used to clear the Group, Result, and Pick status of the geometry elements.

Recalculates limits of geometry.

_____

Axis

Draws a vertical and horizontal line representing the X,Y and Z axis.

This is temporary and is cleared with the next redraw of the plot window.

Shortcut Key = F9

_____

Animation

When this menu item is checked, the tool is plotted on the screen in steps along the toolpath. The speed of movement is determined by the size of the step. Set the speed of movement with Animation Set

When Solids is on, tool interpolation is always active.

Shortcut Key = F8

_____

Background Color

The background of the plot window can be set to either black or white. Set the color in Configure Screen.

_____

Plot Window Top

For System Type Mill, this is the normal X,Y axis view of the CAD file and NC plotting.

See also: View Buttons .

_____

Plot Window: Front

For <u>System Type Mill</u>, this is an   X,Z axis view of the CAD file and NC plotting.

See also: <u>View Buttons</u> .

_____

Plot Window Side

For System Type Mill, this is a Y,Z axis view of the CAD file and NC plotting.

See also: View Buttons .

_____

Plot Window Isometric

When in <u>System Type Mill</u>, this setting will display the CAD file and NC plotting in an isometric view. Holding down Alt key left mouse button drag will dynamically rotate the view.

See also: <u>View Buttons</u> .

_____

CAM Menu

Point

Tangent

Arc

Intersection

Arc Intersection

Corner

Tangent-Point

Tangent-Drag

Contour

Offset

Corner Radius

Load Tool...

Plot Status...

Calculator…

Execute>

_____

CAM Tool: Tangent

CAM Tool: Tangent

This feature allows you to pick on a CAD element and have the tool move tangent to that element and insert the coordinates into the edit window.

If a tool is loaded, when you pick a CAD element, the tool will be drawn with the toolnose tangent to the element and the X and Z coordinates will be inserted onto a new line in the edit window, at the edit cursor position.

Which side of the element that the toolnose is drawn tangent to is determined by which side of the element the element the mouse cursor is on when it is picked.

For a lathe tool, the position and size of the toolnose radius is determined by the input to the dialog box that appears when you save a tool drawing. The tool radius can be temporarily increased or decreased in the Tool Offset dialog box.

Tools With Width

For lathe tools that have a width, like a grooving tool, its usually possible to put the tool tangent to either side of the tool. When Width and Angle are filled out properly in the Tool Nose Info dialog box, you can pick an element tangent to one side or the other side of the tool. If the tool doesn't go tangent to the element in the right way, try holding down the Shift key while picking the element. This reverses the orientation information on the tool and may put the tool the way you are looking for.

If there is no tool loaded, or the toolnose is set for 0,0,0 then the coordinates inserted into the edit window would be the actual point that was picked.

See: Insert XYZ Buttons on how to insert these coordinates into the edit window and Tool Offset for adding a tool radius offset.

_____

CAM Tool: Arc

CAM Tool: Arc

This CAM function creates toolpath around an arc.

Pick the start of the arc on the side to be cut. Insert the start point of the arc into the editor by pressing the Insert XYZ button . Insert the arc move with the Insert Arc button.

Tool Offset will add an extra amount to stay away from the elements.

See: Insert XYZ Buttons on how to insert these coordinates into the edit window and Tool Offset for adding a tool radius offset. Tools .

_____

Cam Tool: Intersection

This CAM function will move the tool tangent to two lines or arcs.

Pick the first entity on the side to be tangent to, then pick the other entity and side to be tangent to.

Insert the X, Y, or Z value into the editor at the cursor position with the <u>Insert X, Y, or Z</u> buttons.

<u>Tool Offset</u> will add an extra amount to stay away from the elements.

See: <u>Insert XYZ Buttons</u> on how to insert these coordinates into the edit window. <u>Tools</u> .

_____

CAM Tool: Corner

CAM function for making an arc toolpath around a sharp corner.

Pick the first line on the side to start from, then pick the second line on the side to end on. Output the result with Insert Arc button.

The default corner radius is 0. This can be changed with the Corner Radius dialog box.

Tool Offset will add an extra amount to stay away from the elements.

See: Tools

_____

CAM Tool: Point

This CAM function will move the tool to a point that you pick.

A tool must be loaded first (with either the '(TL' comment in the NC file, or with the Load Tool menu item) for the tool to be displayed.

If the Cursor pick button is down, you can move a picture of the tool around the screen and display the position coordinates. Hold down the left mouse button. As the mouse is moved around in the plot window the tool picture is moved around with it. The position at the crosshair cursor is displayed on the status bar.

With the other pick buttons, you can position the tool to an endpoint, center point, midpoint, etc.

To position the tool tangent to an element, use the other CAM Tools.

Insert the X, Y, or Z value into the editor at the cursor position with the Insert X, Y, or Z buttons.

_____

CAM Tool: Tangent Point

This CAM function will move the tool tangent to a line or arc at a place that is nearest to whatever point you pick.

Pick the entity on the side to be tangent to, then pick any other position.

Insert the X, Y, or Z value into the editor at the cursor position with the Insert X, Y, or Z buttons.

Tool Offset will add an extra amount to stay away from the element.

See: Tools.

_____

CAM Tool: Tangent Drag

This CAM function allows you to pick a line or arc and drag the <u>tool</u> along it, always staying tangent to the entity, outputting the coordinates.

If you pick a Line: Pick the line on the side that you want the tool to be tangent to. The tool will appear tangent to the spot where you picked, but now you can move the mouse and the tool will move, always remaining tangent, even when you go past the endpoints of the line. The position coordinates are continuously displayed in the status window. When you click the left mouse button the tool will stop in its position. Then you can use the <u>X,Y,Z insert buttons</u> to insert the coordinates into the editor. Then its ready to pick the next line.

If you pick an Arc: Since the NC output for an arc requires the start position and end position, Drag Arc will give the opportunity to pick both. First pick the arc on the side you want to be tangent to. Then drag the tool around to the start point and press the left mouse button. This will store the start position coordinates into the X,Y,Z insert buttons. Then continue to drag the tool around to the end point for the arc. Press the left mouse button again and the end point coordinates and the I,J,K values will be stored into the <u>arc insert button</u>. Notice that the G02-G03 value changes back and forth depending on whether you drag the tool around clockwise or counter-clockwise.

By using the Shift key or Ctrl-Shift, you can drag the tool horizontal or vertical from a mouse point. Hold the Shift key down and pick any place in the window with the mouse, and the tool will drag horizontal from there. Use Ctrl-Shift for vertical.

_____

CAM Tool: Arc Intersect

This function is used to output arcs that are not tangent to the line or arc before them.

First pick the intersecting entity on the side you want to be tangent to. Then pick the arc you want to generate on the side you want to be tangent to. Make sure you pick it near the start of the arc. This will put the start coordinates in the X,Y,Z insert buttons and the end coordinates with the I,J,K into the arc insert button.
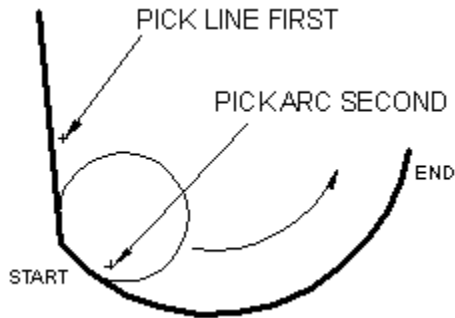
Tool Arc Intersect is only for when the start of the arc is on the non-tangent entity. If the non-tangent entity is on the end of the arc then you will have to use a different technique:

Just output the arc with Tool-Arc or Drag-Arc and you will have the correct start coordinates and correct I,J,K values. Only the end coordinates will be wrong. So use the buttons to insert those lines into the program and then use Tool-Intersection to get the correct end point and insert it into the arc move.
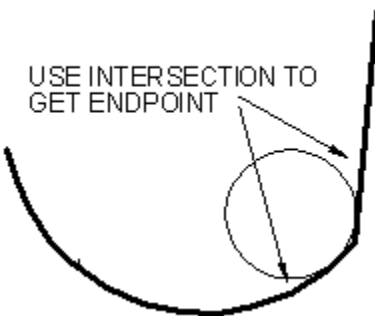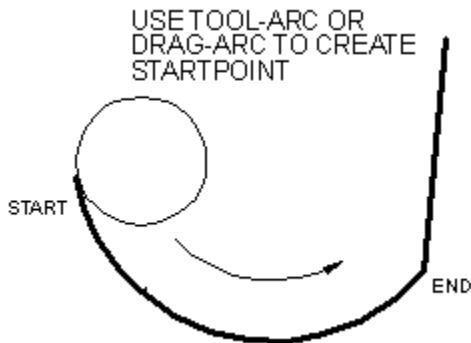
Tool Offset
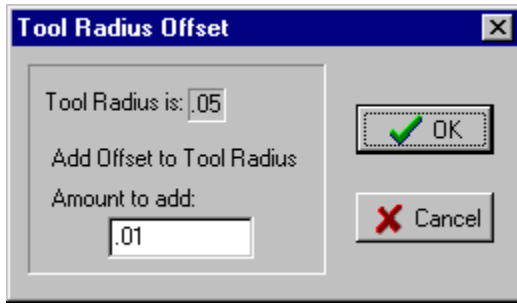
Dialog box asks for value to add to the standard radius size for this tool .

The standard size is shown for reference.

This is used for the CAM functions that put the tool tangent to an element. The tool will be offset from the tangent by that extra amount.
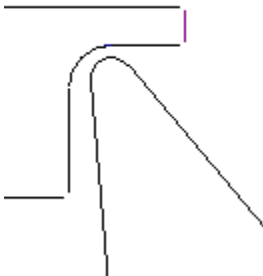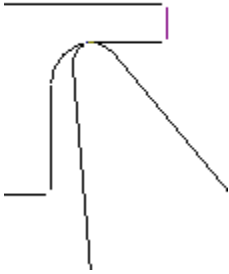
Tool tangent with 0 offset.   With .015 offset

The value in Amount to Add is also used to for Cutter Comp. See: Comp NC and Configure Plotting .

_____

Corner Radius

Corner Radius ☒

Corner Radius: .003

✓ OK   ✗ Cancel
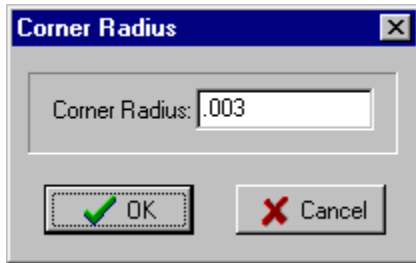
Dialog box asks for value of corner radius to be used for Tool-Round .

_____

Tools

Tools

Inplot uses CAD drawings of tools for display along with the tool path. These files must be in the CADL format.

Draw the tool with lines and arcs in full scale in any CAD system that can export a CADL file.

Save the CAD file. The filename is the name of the tool and the file extension must be '.CDL'

Tools are loaded for plotting either by a comment code command in the program or from choosing in the Load Tool dialog box.

Optionally, you can add an area on the tool that will cut away a Solids picture.

See Also: Load Tool, Sequence

_____

Load Tool
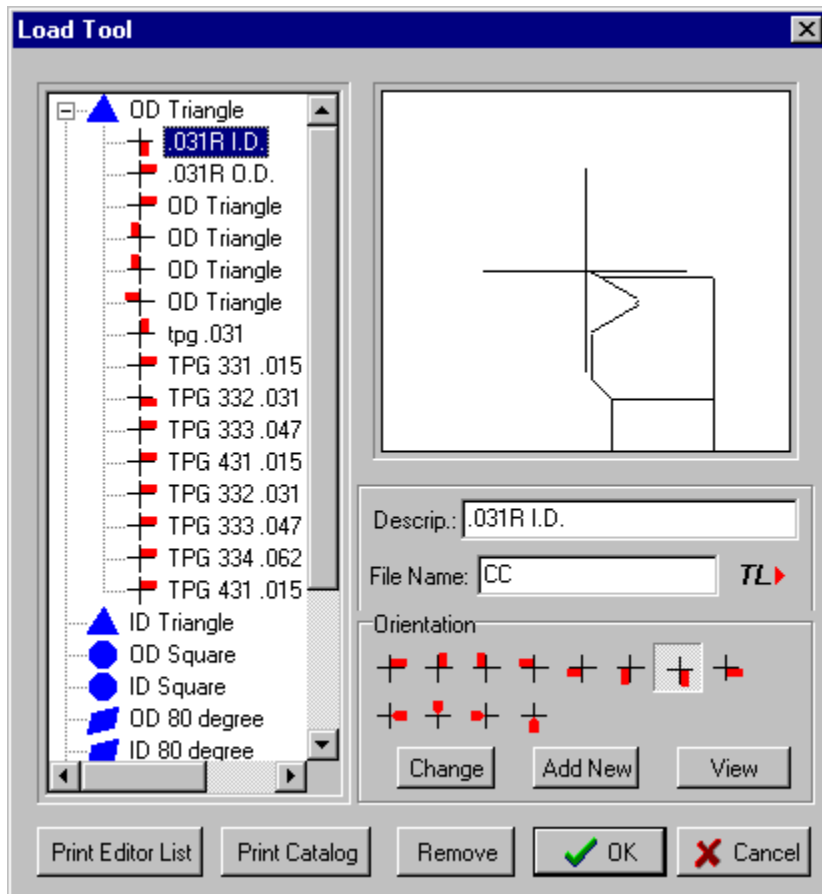
Load Tool

List box displays the entries that are on the Tool List File

The name of the tool list file is set in the machine Configuration-Tools dialog box. The default name is 'tools.txt'.

This file must be in the directory with the current tool file path name.

The list is made of Category names and Description names.

Notice the Insert Shape glyphs ▲

● next to the Category names

Notice the Orientation glyphs ┳

┼ next to the tool Description. These are visual indicators of the tool set orientation for this tool.

Clicking on any tool on the list will display a preview picture of the tool showing the tool setting orientation.

Enter name of tool (which is the same as the file name) in the edit box or pick from the list.

Loading a Tool for the Current Plotting

1. Click on a Category on the list.

2. Click on one of the tool descriptions.

3. Click the OK button.

Normally, you would want to load tool pictures automatically as the program is plotting with Comment Code TL

Adding a New Tool to the List

1. Draw the tool and save the file in CADL format.

2. Open Load Tool dialog box and click on a category on the list to highlight it.

3. Click the Add New button.

4. Enter a description in the description box.

5. Enter the name of the file you made in the file name box. You can search for a file by clicking the 'File Name' button.

6. Click on the orientation icon that corresponds to the settings made in the tool drawing.

7. Click the Add New button

You can also drag and drop tool cad files from Windows Explorer to the tool picture window.

Making changes to a Tool on the List

1. Highlight the tool on the list that you want to change.

2. Make changes to Description, File Name, and Orientation.

3. Click the 'Change' button. The changes will be saved when you close the dialog box.

Deleting a Tool from the List

4. Highlight the tool on the list that you want to delete.

5. Click the Remove button.

6. The changes will be saved when you close the dialog box.

How to Load a Mill Tool

In the File Name edit box, enter 'TM', space, and the diameter of the tool.

Example: TM .5

View a Picture of a Tool

You can also preview a tool by typing in the tool name (which is the same as the file name) into 'File Name' box and clicking the 'View' button. You can also drag and drop tool cad files from Windows Explorer to the tool picture window.

Print Catalog

The Print Catalog button will print out pictures of all the tools contained in the Load Tool list along with tool information.

Print Editor List

The Print Edit List button will print out pictures of all the tools contained in comment codes in the editor along with tool information. There is a utility program to create a text file of comment codes of all the tool files in a directory at the i-Logic web site. With that you could print pictures and names of

every tool in a directory in a three column list.

TL> This button will insert a comment code for this tool in the editor at the cursor position.

You can also add the tool manually to the tool list file. See: Tool List File

The name of the currently loaded tool is in the Tool Name Window on the Status Bar .
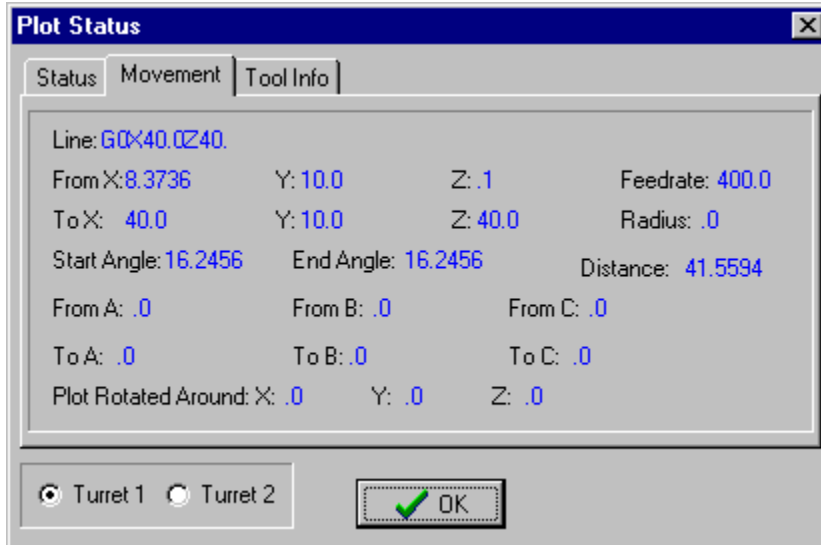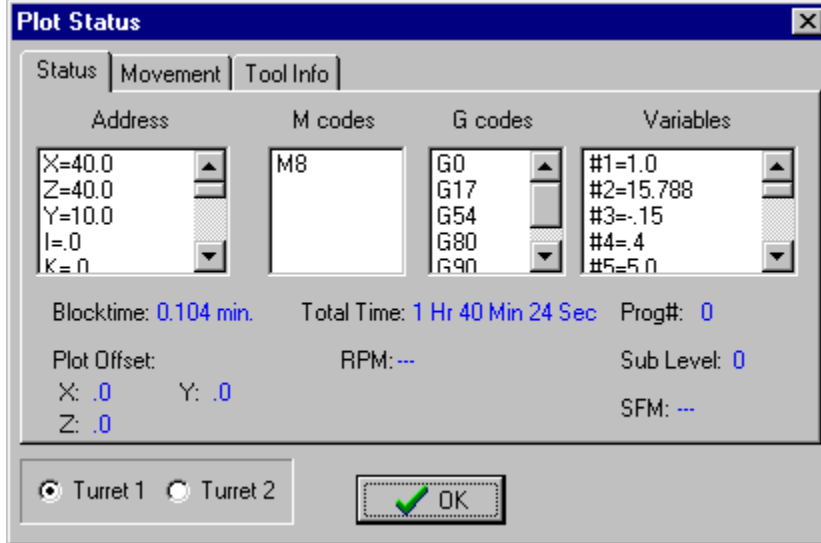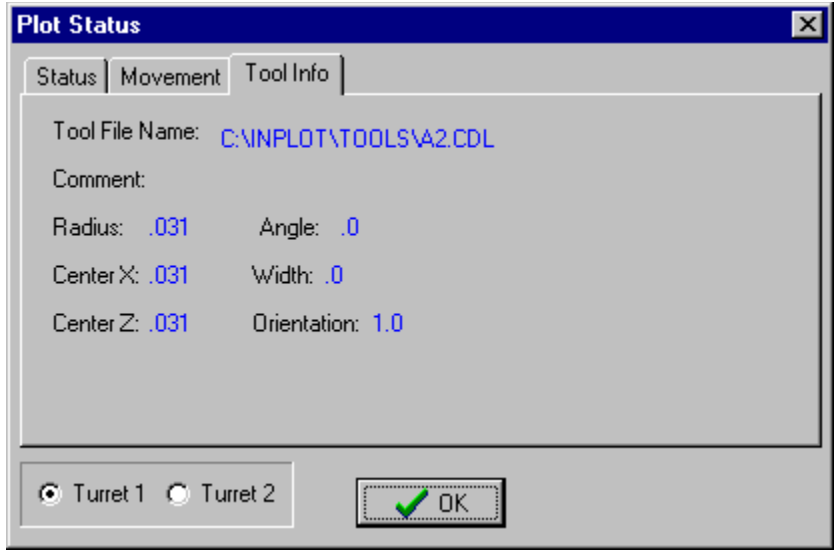
See also: Tools , Sequence

_____

Plot Status

Plot Status

Displays information INPLOT has obtained during plotting the NC program.

All the items display the current status from the last block that was plotted. Useful for debugging programs by seeing the current status of the addresses and variables.

When the Plot Status window is left open, it is updated during plotting in step or auto.

Plot Status

Status | Movement | **Tool Info**

Tool File Name: C:\INPLOT\TOOLS\A2.CDL

Comment:

Radius: .031   Angle: .0

Center X: .031   Width: .0

Center Z: .031   Orientation: 1.0

◉ Turret 1   ○ Turret 2   ✓ OK

Execute Menu

Menu has places for 4 application filenames. The names are put in the Configuration Screen. When the menu item is clicked, the application is started with the WinExec function.

_____

CAD Menu

Points>

X,Y

On Circle at Angle

Lines>

2 Points

Point Angle

Point, Tangent to Arc

Perpendicular Through Point

Parallel, Offset

Tangent to 2 Arcs

Tangent to Arc at Angle

Horizontal

Vertical

Circles>

Center, Radius

Center Tangent

Center, Through Point

Offset Size

Through 3 Points

Through 2 Points, Radius

Tangent, 2 Points, Line

Tangent to 3 Elements

CAD Text...

ArrowHead

Trim>

Trim 1 Object

Fillet

Chamfer

XForm>

Rotate

Move

Copy

Mirror

Scale

Analyse>

Analyse Element

Analyse Two Points

Analyse Angle

Delete>

Elements

CAD Text

ArrowHead

Current Color

Current Layer

Group

Result

Duplicates

Change>

Color>

Elements

Group

Result

Layer>

Elements

Group

Result

Group>

New

Add

Remove

Current Color

Current Layer

All

_____

Point: XY

Makes a point on the plotting window.

Pick a point with the mouse cursor.

_____

Point: On Circle at Angle

Pick arc. Dialog box asks for angle .

_____

Line: 2 Points

Makes a line between 2 points.

Pick 2 points.

_____

Line: Through Point at Angle

Draws a line from a point at an angle with a certain length.

After choosing the menu item, pick starting point for line.

Dialog box will ask for angle and distance. Coordinates of start point can be changed in edit box if desired.

_____

Line: Point and Tangent to an Arc

First Pick point, then pick arc at side it should be tangent to.

_____

Line: Perpendicular to Line Through a Point

First Pick a line, then pick a point the perpendicular should go through.

_____
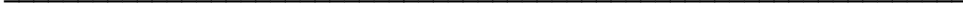
Line: Parallel to Line Through a Point

First Pick a line, then pick a point the parallel line should go through.

_____
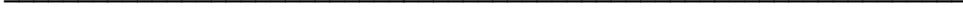
Line: Parallel, Offset

Draws a line the same as an existing line, but offset certain distance to one side.

Dialog box asks for offset distance.

Pick a line. The side which the new line is drawn depends on which side the original line is picked on.

_____

Line: Parallel to Line at Distance

Dialog box asks for distance, then Pick a line towards the side it should be offset to.

_____

Line: Tangent to Two Arcs

first arc on side the line should be tangent to, then pick the second arc on side it should be tangent to.

_____

Line: Tangent to Arc at Angle

Dialog box asks for Angle, then Pick arc on side it should be tangent to.

_____

Line: Horizontal

Makes a horizontal line starting at the X, Y, Z coordinates of the first point picked. The endpoint goes to the coordinate of the second point picked.

_____

Line: Vertical

Makes a vertical line starting at the X, Y, Z coordinates of the first point picked. The endpoint goes to the coordinate of the second point picked.

_____

Arc: Center and Radius

Dialog box asks for radius, then Pick a point for the center of the new arc.

_____

Arc: Center Point and Tangent to One Element

First Pick a line, then pick a point for the center of the new arc.

_____
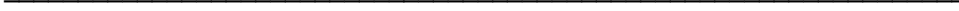
Arc: Tangent to Element and Through a Point

Dialog box asks for radius, then Pick a line, then pick a point the new arc should pass through.

_____

Arc: Center Point and Passing Through a Point

Pick a point for the center of the arc, then pick a point that the new arc will pass through.

_____

Arc: Offset Size

Creates a new arc at the center point of another arc.

Pick an arc and dialog box asks for Radius of new arc.

_____

Arc: Passing Through 3 Points

Pick three points that the new arc will pass through.

_____

Arc: Tangent to Two Elements

Dialog Box asks for radius of new arc, then Pick two arcs sides that the new arc should be on.

_____

Arc: Two Points and Radius

Create an arc passing through 2 points with a specified radius. First dialog box asks for radius, then pick two points.

The arc is automatically created on the RIGHT side of the two points.

_____
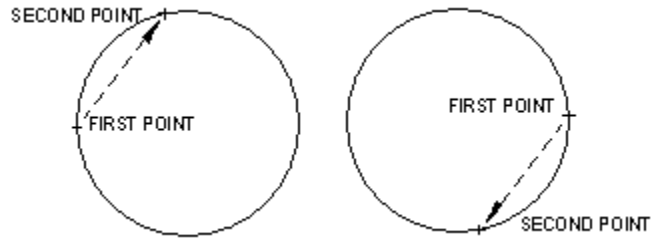
Arc: Tangent to Element Through Two Points

Create an arc tangent to a line and passing through 2 points. First pick a line and then pick two points.

_____
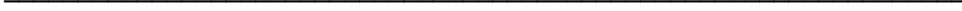
Arc: Between 2 Points

Pick two points and the arc will be made between them. The radius of the arc is equal to half the distance between the two points.

_____

Arc: Tangent to 3 Elements

Pick any combination of lines, arcs, or points that the new arc should be tangent to.

_____

CAD Text

Draws annotation text on the CAD

First, the cross cursor appears and prompts you to pick a point where you want the text. After that, a Dialog Box allows you to enter the text string. This text always remains the same size no matter what the zoom scale is. Each text length is limited to 24 characters.

_____

Arrowhead

Make arrowheads on the end of lines by clicking on the line near the end that you want it.

_____

Trim 1 Object

Used to extend or trim lines and arcs.

Pick first line or arc, then pick second line or arc. First element will be extended or trimmed so that it touches the second element.

_____

Trim to Point

Used to extend or trim lines and arcs.

Pick first line or arc, then pick a point somewhere along the line or arc. The line or arc will be trimmed to where that point would intersect.

_____

Fillet

Used to make fillet between two intersecting lines.

Dialog box asks for fillet radius. Then Pick two lines. Lines will be trimmed to fillet endpoints.

_____

Chamfer

Makes a chamfer between two intersecting lines.

Dialog box asks for size of chamfer. This is the distance between the intersection point of the two lines, and edge of the chamfer.

Pick two lines.

The angle of the chamfer is always half of the angle of the two intersecting lines.

_____

Xform: Rotate CAD

Rotate the defined group around a point, at an angle.

After choosing Xform Rotate from the menu, pick a point that you want the group to be rotated around.

Then a Dialog box will ask for Incremental Angle, Number of Times, and if you want to Leave the Original Group. X and Z coordinates can be changed in the edit boxes if desired.

If number of times is more than one, it will make copies of the group, each rotated angle amount from each other.

If Leave Original is not checked then the original group will be deleted.

_____

Xform: Offset CAD

Offsets defined group X, Y and Z amount.

First define a group.

After choosing Xform offset menu item, Dialog box asks for X, Y and Z incremental distance to move the group. If number of times is more than 1, then multiple copies will be made, each one X an Z distance from the previous one. If Leave original is not checked, the original group will be deleted.

X is a diameter distance if Set Lathe Input is set to diameter.

_____

Xform: Move CAD

Moves the currently defined group from its current location to another location. The original group is deleted.

Pick first point. Then pick second point.

The group will be moved the X,Z distance between the first and second point.

A group must be defined first.

Xform: Copy CAD

Makes a copy of the currently defined group.

Pick first point. Then pick second point.

The group will be copied to the X,Z distance between the first and second point.

A group must be defined first.

_____

Xform: Mirror CAD

Mirrors a group over a specified line.

First, a group must be defined.

After choosing Xform Mirror CAD menu item, pick a line.

The group will be duplicated on the other side of the line.

If you want to delete the original group, use the Delete Group menu item.

_____

Xform: Scale CAD

New Topic text goes here.

_____

Analyze: Element

```
LINE:  Element No.34
X1= -0.1000  Y1= 5.9550
Z1= 0.0000
X2= -0.1700  Y2= 5.8850
Z2= 0.0000
Angle= 225.0000
Length= .099
Layer= 1
  x
  x
```

✓ OK
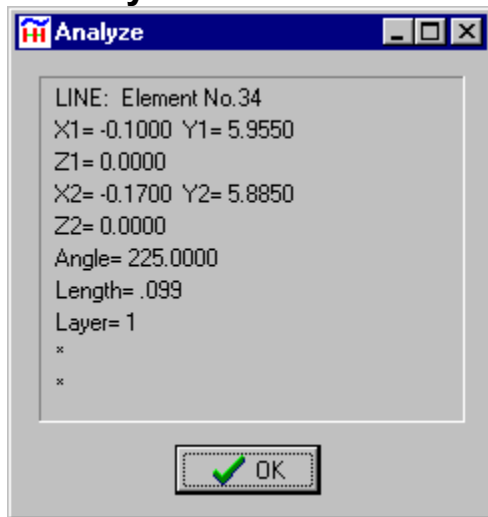
Analyze: Element

Pick element.

Dialog Box appears with dimensional and layer information on that element.

_____

Analyze: Two Points

```
Analyze                                    _ □ X

P1= X-2.8548 Y6.4233 Z0.0000
P2= X-2.1521 Y5.3143 Z0.0000
X Dist= 1.1090
Y Dist= 0.7027
RADIAL= 1.3129
Mid= X-2.5034 Y5.8688 Z0.0000
Angle= 302.3609
3D Distance= 1.3129
×
×

                    ✓ OK
```
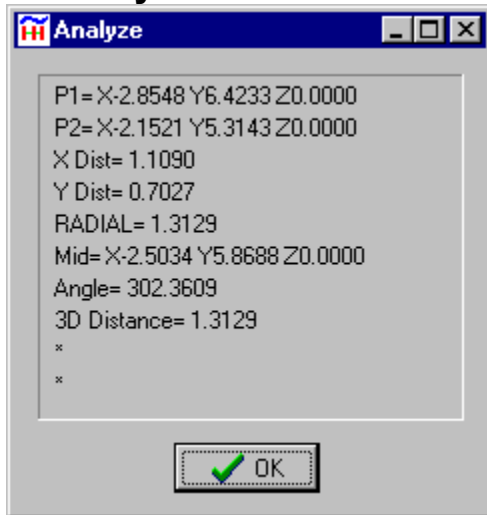
Pick first point, then pick second point.

Dialog Box appears with dimensional information.

_____

Analyze: Angle

Pick two lines and dialog box will show angle information.

_____

Delete: Element

Pick element to delete with the mouse. The Point or Window pick button must be used in order to delete POINTS.

_____

Delete: CAD Text

Choosing this menu item allows you to delete text created in the CAD window. Click on the upper left corner of the text. It doesn't matter what the Pick Buttons are set for.

_____

Delete: ArrowHead

Allows you to delete ArrowHeads by clicking on them with the mouse.

_____

Delete: Current Color

Deletes any element in the plot window that are the same color as the current color

The current color is indicated on the status bar .

_____

Delete: Current Layer

Deletes any elements on the current layer.

The current layer is indicated on the status bar .

_____

Delete: Group

Delete: Group

New Topic text goes here.

_____

Delete: Result

Deletes the result of the last Xform operation.

Delete: Duplicates

Delete: Duplicates

Deletes duplicate elements.

Checks each element in memory and deletes elements that have the same definition and are on the same layer.

_____

Delete: Toolpath

Deletes any toolpath that was saved as geometry.

Use the ⬚ button or on the CAD Delete main menu.
See Also: Save Toolpath

_____

Change: Color

To change elements to a different color.

Set current layer to desired color.

Pick menu item:

Elements-

Pick elements to change.

Group-

Changes all the elements in the defined **group** .

Result-

Changes all the elements in the current result .

_____

Change: Layer

To move elements from one layer to another:

Set current layer to desired layer.

Pick menu item:

Elements-

Pick elements to change.

Group-

Changes all the elements in the defined **group** ;

Result-

Changes all the elements in the current result .

_____

Group: New

Restores any currently defined group to normal, then you can start picking elements to define a new group.

_____

Group: Add

Allows adding elements to the already defined group.

Pick any elements and they will be added to the group and will be highlighted in the group color.

_____

Group: Remove

Allows you to pick elements and remove them from the current group.

_____

Group: Current Color

Makes a Group out of all the Elements displayed in the current color so they can be used with the Transform functions.

_____

Group: Current Layer

Makes a Group out of all the Elements displayed in the current layer so they can be used with the Transform functions.

_____

Group: All

Makes a Group out of all visible Elements displayed so they can be used with the Transform functions.

_____

Utilities

Utilities

[**Change Value**](#)

[**Offset NC**](#)

[**Print Columns**](#)

[**Punch**](#)

[**Punch W/O ()**](#)

[**Reformat**](#)

[**Remove Address**](#)

[**Renumber**](#)

[**Rotate NC**](#)

[**Scale NC**](#)

[**Switch XYZ**](#)

[**Switch Address**](#)

[**Order NC**](#)

[**Time**](#)

[**Add Space**](#)

[**Comment Out**](#)

[**Un-Comment**](#)

[**Remove Blanks**](#)

[**Print to Scale**](#)

[**Reverse Lines**](#)

[**Remove Spaces**](#)

[**Check Syntax**](#)

[**Break Arcs**](#)

[**Macro Out**](#)

[**Comp NC**](#)

_____

Change Value
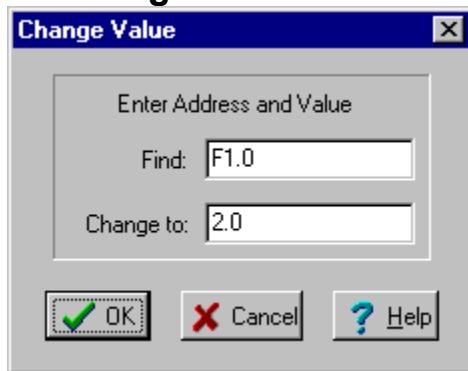
Dialog box asks for Address and value to look for in editor file. The address values in the editor file are translated to actual numeric value according to the current format settings and compared with the search value. When found, the new value is formatted and replaces the text in the editor.

Also, these special characters can be used in the Find box: <,   >, *

Ex:

Find: F>2.0   will change all the F values that are greater than 2.0

Find: F<2.0   will change all the F values that are less than 2.0

Find: F*   will change all the F values no matter what they are

If a section of text is selected, only that selection will be searched, otherwise the search will start at the cursor location.

_____

Bolt Circle

This will create the NC code for the coordinates of the bolt circle and insert them into the editor at the cursor position.

Start Angle – The first hole will be placed here.

End or Incremental Angle – If the 'Use Incremental From Start' box is checked then this represents the angle between each hole, otherwise, this is the angle of the last hole.

Total Number of Holes – Including the first and last holes.

Output Angles – Check this if you want to output angle positions.

Output X,Y – Check this if you want to output X and Y coordinates.

Radius – this is used only when Output X,Y is checked.

_____

Shift NC

Shift NC will add a value to an existing address value in the editor. Up to three addresses can be done at the same time. The new values in the editor will be formatted to the current format. Use this feature to shift the NC program to cut at a different location than originally programmed.

Dialog Box asks for value to be added to up to three addresses at a time. Values can be positive or negative.

If lines are selected in the edit window, only those lines will be processed, otherwise processing starts at the cursor position.

See also: Format

_____

Print Columns
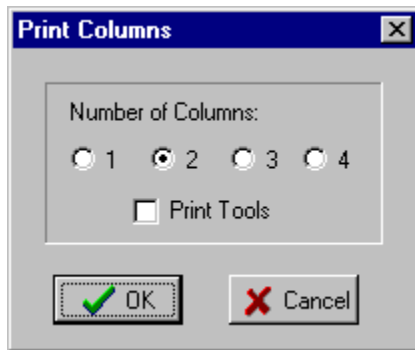
The file can be printed in 1,2,3, or 4 columns on a page with the text and pictures scaled to fit. 4 columns prints tiny but is handy for checking or reference.

Check number of columns on Dialog Box.

If PRINT TOOLS is checked, lathe tools will be printed on the same page wherever there is a 'TL' comment code.

If a portion of the file is selected then only that selection will be printed, otherwise, the entire file is sent.

Left Margin on printing is controlled by 'PrintMargin' in Machine INI file.

See also: Printer Setup

_____

Punch
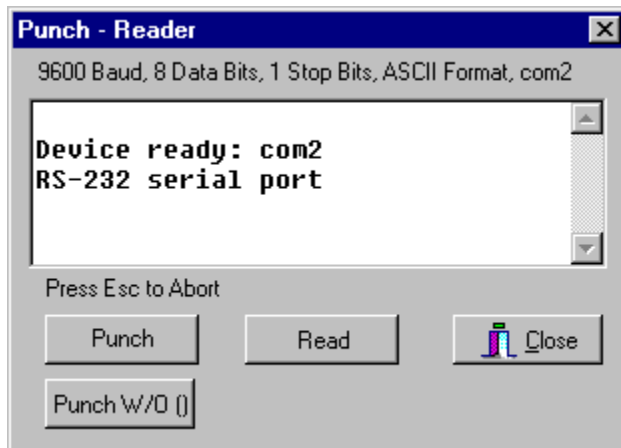
Sends the text in the edit window to the serial port.

Serial port configuration must be set in Set Punch .

Set output format to ISO or EIA on Set Punch menu.

Output text always starts at beginning of the file in the edit window.

To abort output press 'ESC' on keyboard.

See also: Punch W/O ( )

_____

Punch W/O ( )

Same as Punch except does not send lines from the edit window that start with the comment character. The default Comment Characters are '(' and ')'

This allows you to punch NC tapes for machines that will not accept comments, and still keep them in the main file.

_____

Reformat
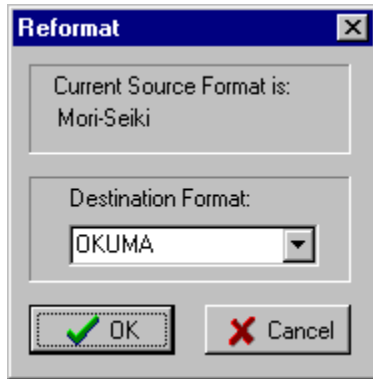
Dialog Box shows Current Format Setting and offers choice of other available format settings for the Destination Format. After pressing OK button, all values in editor will be reformatted according to Destination Format.

The formatting changes made include decimal place format, leading zeros, trailing zeros, radius or diameter for lathes, and arc format.

If there is selected text, only the selected text is reformatted. If no text is selected the formatting begins at the cursor location.

Example: Original NC program

N025X16.9678M04

N030Z1.987

N035M08

N040G01X15.6702F.007

N045G00Z2.0684

N050X16.9520

N055Z1.9371

N060G01Z1.9

N065G04P1000

N070M09

N075G00Z9.975

After Reformat:

N025X169678M04

N030Z19870

N035M08

N040G01X156702F0070

N045G00Z20684

N050X169520

N055Z19371
N060G01Z19000
N065G04P1000
N070M09
N075G00Z99750
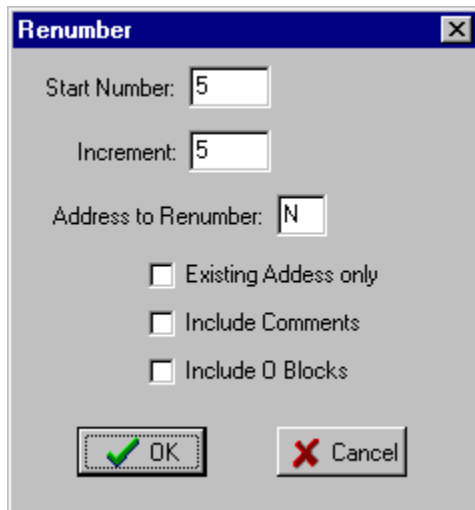
See also:

_____

Renumber

Create new block numbers for the entire editor file, or selected lines

Block numbers are added to all lines except blank line and comments.

First displays dialog box that asks for Start number and Increment. The default values can be changed with Configure Editor.

Other addresses can be renumbered in the same way by entering them into 'Address to Renumber'.

If Existing Address Only is checked, then blocks will only be renumbered if they are already present on the line.

If Include Comments is checked, comment lines will also be renumbered. Normally they are skipped.

If Include O Blocks is checked, 'O' numbers will be renumbered along with 'N' numbers.

If a section of text is selected, only that selection will be renumbered, otherwise renumbering will start at the cursor location.

_____

Rotate NC

Takes a selection of text in the edit window and changes the X, Y, Z, I, J and K values.

Enter the axis to be rotated around. (X, Y, or Z)

Dialog box asks for incremental angle to rotate. Rotation point X, Y and Z can be changed if desired. If number of times is more than 0, then multiple copies are inserted into the editor - each rotated the same angle from the last one

Tip: if extra accuracy is required during multiple rotations, set the format for the X,Y,Z addresses to five decimal places.

Only works when lines of text are selected in the edit window.

_____

Scale NC
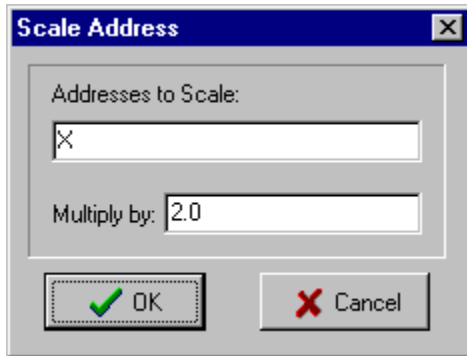
Changes value of specified address of NC file in edit window.

Dialog box asks for Address and scale factor. The Address value is multiplied by this factor and changed in the edit file according to the current format settings.

If there is selected text, only the selected text is searched. If no text is selected the search begins at the cursor location.

_____

Switch XYZ
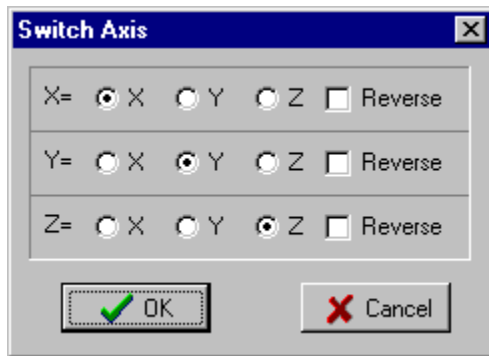
Dialog Box lists X,Y and Z axis. After the equal sign on each row are check boxes that show what that axis address will be changed to in the NC file.

If you want that axis to stay the same, then set it to the same axis.

If the Reverse Sign check box is checked, the sign (plus or minus) will be switched also.

If lines are selected in the edit window, only those lines will be processed, otherwise processing starts at the cursor.

See also: Switch Address

_____

Switch Address
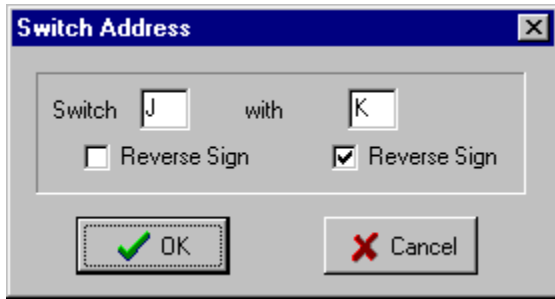
This will switch two addresses with each other on the same line. Checking the Reverse Sign box will change the sign of that address after it is switched. If only one of the addresses is found on the line no action is taken.

MIRROR NC CODE:

To just reverse the sign on the X-axis: highlight the section you want to change, fill out dialog box "Switch X with X" and check the second "reverse sign".

With "Switch XYZ " utility, you can transform the code in 3D space by switching X,Y,Z and changing all the signs at the same time.

 You can use "Rotate NC" to rotate the code 180 deg. to the other side of the axis, but that won't be the same as mirror because the part will be upside down.

 Rotate NC will rotate all the arc moves to the right numbers. Switch Axis will just switch the signs, so any arc moves won't be right, and have to be fixed manually.

If a section of text is selected, the action will be performed only that selection, otherwise the action will start at the cursor location and continue to the end of the file.

_____

## Order NC

Sort Addresses

This utility puts the addresses on each line in a specified order. Enter a string of characters in the order that you want the addresses in the line of NC code to be ordered. This string will be saved to the machine format file when you save the current Configuration.

Strip Unneeded Addresses

Enter a string of characters for the addresses. Inplot will go through the editor and these addresses will be checked and any unneeded, redundant values will be removed.

If a section of text is selected, the action will be performed only that selection, otherwise the action will start at the cursor location and continue to the end of the file.

_____

Time
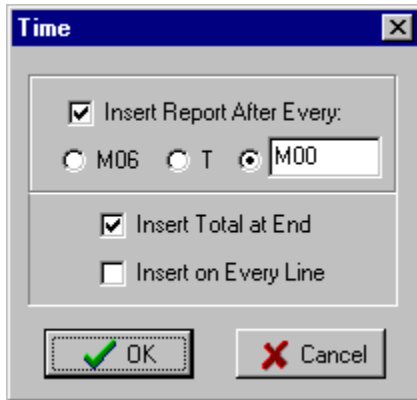
Calculates the running time of the NC code in the editor. Starting at the beginning of the file, it will calculate the time and add to the total.

If the 'Insert Total at End' is checked, it will add comment lines at the bottom of the program with the total run time.

If the 'Insert Report After Every:' is checked it will insert a comment with the run time and segment time up to that point when it finds 'T' address, 'M6' code, or the entered string of characters, depending on which is checked.

When you know there will be extra time taken at a certain point in the program, like checking the part or tools, you can manually put in that extra time by adding a ' TTM' comment code line. That time will be added in when it is found. That way, the total time at the end of the program will reflect the actual running time.

See Configuration Time for how to adjust the time of certain functions.

This only operates on the entire file. If you want to find the time of a small section, you can run that section with the Plot Status dialog box open and look at the time displayed there.

_____

Reverse Line

Reverses the order of the lines of text in the file. The first line becomes the last line, the second line becomes the second to last line etc.

Some lines in the editor must be selected or if cursor is at beginning of file the whole file will be processed.

_____

Macro Out
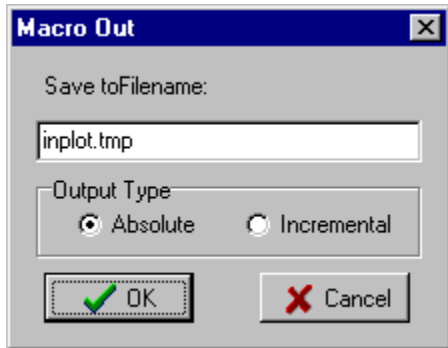
This function will read the NC file that is in the editor and translate any macro functions and sub-programs and variable values to standard NC code and save to a separate file. This function outputs only the basic rapid or feed moves in the program.

With this function you could write an NC program with canned cycles and repeated sub-programs and macro variables and later translate that information into NC code coordinates that you could use for machines that do not support those abilities.

Dialog box will ask for filename to save the output to.

If Incremental is checked, the coordinates output to the file will be in incremental distances, otherwise Absolute coordinates will be output.

If there is selected text, only the selected text is read. If no text is selected the reading begins at the cursor location.

Example: The following program cuts an angle on the lathe jaws. Change the parameter variables to output a different program each time.

```
%
(ANGLE JAW PROGRAM)
(***PARAMETERS******)
#16=776555(PART NUMBER)
(1=OD, 2=ID)
#1=1
#2=19.130(X DIAMETER GAGE POINT)
(Z0 IS FRONT FACE OF JAWS)
#3=.25(Z GAGE POINT, DISTANCE FROM LOCATING FACE)
#4=.5(DEPTH OF JAWS)
#5=3.(ANGLE)
#8=.015(TOOL RADIUS)

(******CALCULATIONS*********)
#2=#2/2
#3=#4-#3
#6=[ABS[#3]+.1](ADJACENT)
#7=#6/COS[#5](HYP)
#9=#8/COS[#5](TOOL HYP)
#10=[SIN[#5]*#9]   (TOOL X SHIFT)
#13=SIN[#5]*#7   (X AMOUNT FOR ANGLE)

(******** OUTPUT PROGRAM HEADER****)
(TMO %)
(TMO N5G13)
(TMC PART NUMBER [#16])
```

```
(TMC [#5] DEG ANGLE OD JAW)
(TMC ---)
(TMC FRONT FACE OF JAWS IS Z0)
(TMC TL A: .015 RADIUS INSERT )
(TMO N10G0X40.Z15.)
(TMO N15T101)
(TMO N20G50S850)
(TMO N25G97S850M4)
(*****END OF PROGRAM HEADER******)

IF[#1EQ2]GOTO2
(TL A2)
#15=[#2+[#13+#10]]*2 (NEW X)
GOTO 3
N2
(TL AA2)
#15=[#2-[#13+#10]]*2 (NEW X)
N3
G00X[#15]Z.1(FIRST MOVE)

#6=#4-ABS[#3]
#7=#6/COS[#5](HYP)
#13=SIN[#5]*#7( X AMOUNT FOR ANGLE)
IF[#1EQ2]GOTO5
#15=[#2-[#13-#10]]*2 (NEW X)
GOTO 7
N5
#15=[#2+[#13-#10]]*2 (NEW X)
N7
G01X[#15]Z-[#4]F.01 (SECOND MOVE)

IF[#1EQ2]GOTO9
G01X#15+1. (THIRD MOVE)
GOTO10
N9
G01X#15-1. (THIRD MOVE)
N10
G0Z.1
G0X40.0Z40.
(*****OUPUT ENDING***
(TMO N55T100)
(TMO N60M0)
(TMO N65M30)
(TMO %)
M30
%
```

Notice comment code TMC is used for outputting a comment line in the file, and TMO is used to output other lines of NC code that would not otherwise be output. Variables found in either of these are changed to actual values.

When the Macro Out function is used, this output will be written to a file:

```
%
N5G13
(PART NUMBER 776555.000)
(3.0000 DEG ANGLE OD JAW)
(---)
```

```
(FRONT FACE OF JAWS IS Z0)
(TL A: .015 RADIUS INSERT )
N10G0X40.Z15.
N15T101
N20G50S850
N25G97S850M4
G00X19.1682Z.1
G01X19.1054Z-.5F.01
G01X20.1054Z-.5F.01
G00X20.1054Z.1
G00X40.0Z40.0
N55T100
N60M0
N65M30
%
```

_____

Print to Scale

Print at Scale ☒

Scale = `1.0` :1.0

✓ OK   ✗ Cancel
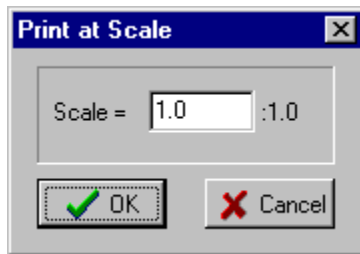
Will print the CAD file to the printer at the exact scale entered. The position of the center of the print will be the same as the center of the display. It doesn't matter what scale the display window is currently at, so if printing at a large scale, care must be taken to position file in the display so that the printed output will be centered where you want. A bigger number entered will make a bigger blow up.

_____

Remove Blank Lines

Removes any blank lines in the editor.

If a section of text is selected, the action will be performed only that selection, otherwise the action will start at the cursor location and continue to the end of the file.

_____

Remove Spaces

Removes the spaces between the addresses on each line in the editor. The opposite of Add Spaces. Does not affect comments.

If a section of text is selected, the action will be performed only that selection, otherwise the action will start at the cursor location and continue to the end of the file.

_____

Un-Comment

Removes the comment lines from the program. The opposite of Comment Out .

If a section of text is selected, the action will be performed only that selection, otherwise the action will start at the cursor location and continue to the end of the file.

_____

Add Spaces

Adds Spaces between addresses to the editor file. You may prefer this for easier viewing. The spaces can be removed with Remove Spaces. Will not affect comments.

If a section of text is selected, the action will be performed only that selection, otherwise the action will start at the cursor location and continue to the end of the file.

_____

Comment Out

Lines selected will have a comment character inserted at the beginning and end of each line. This is for when editing, you may want to keep some code in the editor but don't want it to be able to plot right now. Later you can uncomment it with <u>Un-Comment</u> .

If a section of text is selected, the action will be performed only that <u>selection</u>, otherwise the action will start at the cursor location and continue to the end of the file.

_____

Remove Address
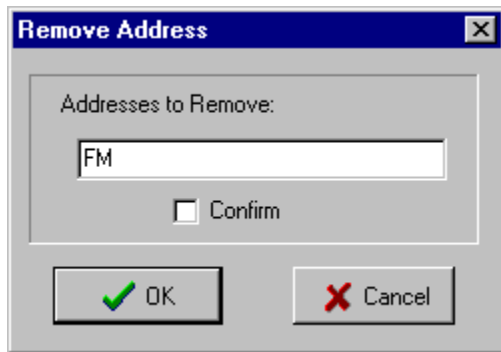
Dialog box asks for address to remove from editor file. Enter character from 'A' to 'Z'. Address and its value will be deleted from editor.

Multiple addresses may be removed at one time by entering them all at once in the dialog box.

If the Confirm box is checked, you will be asked if you to remove every time.

If address is the start comment character, the entire comment will be removed from the line.

If there is selected text, only the selected text is searched. If no text is selected the search begins at the cursor location.

_____

Break Arcs

This utility is for taking arc moves in the program that are greater than 90 degrees in travel and breaking them into multiple arc moves that are 90 degrees or less. With this you can convert a program to run on an older machine control that only allows arcs to travel one quadrant at a time.

Currently only implemented for lathes.

If a section of text is selected, the action will be performed only that selection, otherwise the action will start at the cursor location and continue to the end of the file.

_____

Configuration

Configuration

[Directories](#)

[Format](#)

[Plotting](#)

[Rotary Axis](#)

[Macros](#)

[Feedrates](#)

[Time](#)

[Machine](#)

[Screen](#)

[Editor](#)

[Syntax](#)

[Tools](#)

Each machine format has its own configuration file. On the File menu select the machine format that you want to configure. Then on the File menu select Configuration.

[Add a New Machine Configuration](#)

_____

Configure: Rotary Axis

In Milling Format, these settings will tell Inplot which axis to rotate the plotted toolpath around. This feature only operates in milling format and can be turned on or off in Configure Plotting.

SolidWorks Axis Name: See Solidworks

_____

Configure: Time

These items will be used in calculating the running time of the program.

Rapid Feedrate – Used for calculating time for rapid moves.

Deceleration Factor – Compensation for the deceleration and acceleration according to the feed rate. Usually a very small number.

Add Time – When Inplot finds the String, it will add the listed amount of Time to the running time.

See Also: Time.

_____

Configure: Machine

Machine Name

This is the name shown on the main menu and on the status bar.

System Type

Set to Lathe for 2-Axis X and Z. Set to Mill for 3-Axis X,Y,Z

Lathe X-Axis

When Radius is checked, the "X" dimensions in the NC file and from dialog boxes are interpreted as radius value.

When this menu item is checked, the "X" dimensions in the NC file and from dialog boxes are interpreted as diameter value.

The CAM Insert buttons will insert values adjusted to this setting.

The dimensions in the CAD files that are loaded are always interpreted as radius values.

This does not affect Mill plotting.

Home XYZ

The home position of machine when G28 is activated. This is used for time calculations.

Lathe Orientation

This feature is for switching the displayed plotting and part so it will be shown as it would appear on a vertical lathe.

When System Type is set for Lathe, choose Horizontal for a horizontal style lathe, or Vertical for a vertical style lathe.

All CAD files must be created as they would appear on a horizontal machine. Inplot can automatically display it as it would appear on a vertical machine.

Okuma Twin Turrets

Activates twin turret lathe features. Side by side editors appear. Will load an Okuma twin turret file with G13 and G14 into the separate editors. Will line up P codes in both editors. See Twin Turrets .

_____

Configure: Editor
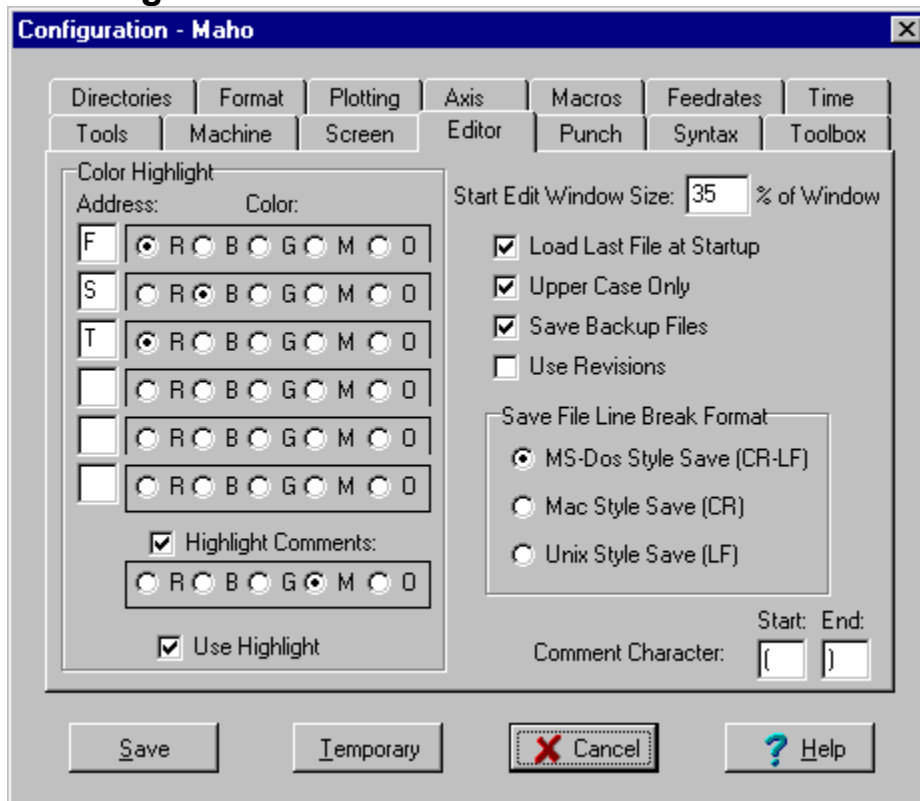
Renumber

This sets the default values that are displayed in the Renumber dialog box.

Color Highlight

If you enter an address and check the desired color, that address will be highlighted in Red,   Blue, Green, Magenta, or Orange everywhere it appears in the editor.

S200T03
X.3953F2.0
G01X2.5194Y-2.1084

Start Edit Window Size

This set the edit window size at startup.

EditWindowSize=35 sets the edit window size to 35% of the application window size.

The default size is 20% of the main window.

Load Last File at Startup

If this is checked, Inplot will load the last NC and CAD file it had when it last ended.

Upper Case Only

If this is checked, all characters typed into the editor will be in upper case. This saves the trouble of

having to always turn on the Caps Lock key.

Save File Line Break Format

Determines what format to save the text file in.

Normal is MS-Dos style. This will save with Carriage Return and Line Feed at the end of every line.

Mac style will save with Carriage Return at the end of every line.

Unix style will save with Line Feed at the end of every line.

Comment Start End

Lines in the editor that are surrounded by these characters will be interpreted as comments. The default character is '('. If the machine uses a different character to signify the start and end of a comment, you can enter it here. If the control uses one character at the beginning of the comment and nothing at the end of the line, leave the End Comment Char blank. Some functions in Inplot will skip over any line that has a comment character in it, so its best to have no other code on the line except the comment.

Save Backup Files

Enables Inplot to rename the old version of the editor file to ".BAK" extension when it does a Save NC File .

Use Revisions

Puts an extension of ".001" on the end of the filename. Every time the file is saved, the number in the extension is incremented. So all the past backup files will be saved.

_____

Configure: Punch

Configuration - OKUMA-Single

Directories	Format	Plotting	Axis	Macros	Feedrates	Time	Tools

Machine	Screen	Editor	Punch	Syntax	Variables	Toolbox

Baud Rate
- ○ 600
- ○ 1200
- ⦿ 2400
- ○ 4800
- ○ 9600
- ○ 19200

Stop Bits
- ○ 1
- ⦿ 2

Data Bits
- ○ 7
- ⦿ 8

Handshake
- ○ Hardware
- ○ XON / XOFF
- ⦿ None

Port
- ○ Comm1
- ⦿ Comm2
- ○ Comm3
- ○ Comm4

Parity
- ○ Odd
- ○ Even
- ⦿ None

Code Type
- ○ EIA ○ ISO ⦿ ASCII File

Leader: 20
(number of inches)

Wait Time: 145
(between lines)

Save   Temporary   ✗ Cancel

Set items according to your tape punch.

ISO - This setting punches tapes in ASCII format with an even number of holes.

EIA - This setting punches tapes in EIA format with an odd number of holes.

ASCII File - Use this setting for direct connection between computers or Fanuc control.

_____

Configure: Format

Dialog box displays formatting information for the current format that is loaded.

Decimal Place Format

Each address has a series of zeros and a decimal point that signify the number of places before the decimal point and the number of places after the decimal point in address values. This tells the system how to read a value that does not have any decimal point.

In the case where the control reads decimal points but a number without a decimal point is interpreted as a whole number: use '000.' And check 'Use Decimal Points'.

Check boxes

Use Decimal Points

If this is checked, then whenever a value is input to the editor with the Input buttons it will be with a decimal point. When this is not checked, the number of digits before and after the undisplayed decimal point is controlled by the Decimal Place Format section and the Leading Zeros and Trailing Zeros checkboxes.

Leading Zeros

If this is checked, values output to the editor will have zeros added to the front of the number to fill up the number of places shown in the Decimal Place Format section before the decimal point.

Trailing Zeros

If this is checked, values output to the editor will have zeros added to the end of the number to fill up the number of places shown in the Decimal Place Format section after the decimal point.

Arc Format

Tells the system how to interpret the values in a G02 or G03 block.

Signed incremental distance from start point to center. This is the normal type for FANUC controls.

Absolute center of arc. This means the X,Y,Z values in a G02 or G03 block are the absolute coordinates of the center of the arc.

Mirror Axis

If X Y or Z-Axis is checked, Inplot will mirror that axis in the plotted toolpath on the screen. Also, values automatically inputted into the editor by Inplot will be mirrored in that axis.

Address Order

This string of characters represents the order of the addresses on each line. This is used by Order NC and some other features that automatically input values to the editor.

Arc Output

This is used with Reformat and Insert Arc . You can choose whether you want to make arc moves with 'R' values or 'I,J,K' values.

Lathe X = Minus

If this is checked, negative numbers in the X-Axis will be interpreted as positive numbers. Also, the picture of the lathe tool will be reversed to show it cutting on the other side of the part.

_____

Configure: Tools
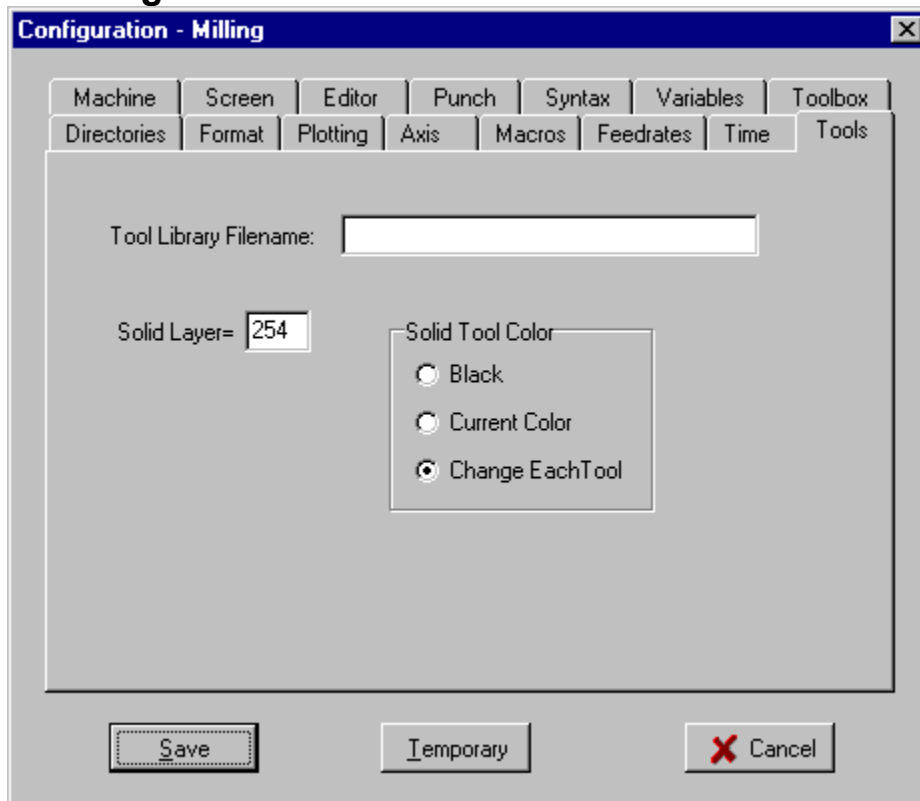
Tool Library Filename

Enter the filename of the tool list file. The default name is 'Tools.Txt'.

This file has to be in the Tools subdirectory.

With this, you are able to have a different tool list file for each machine configuration.
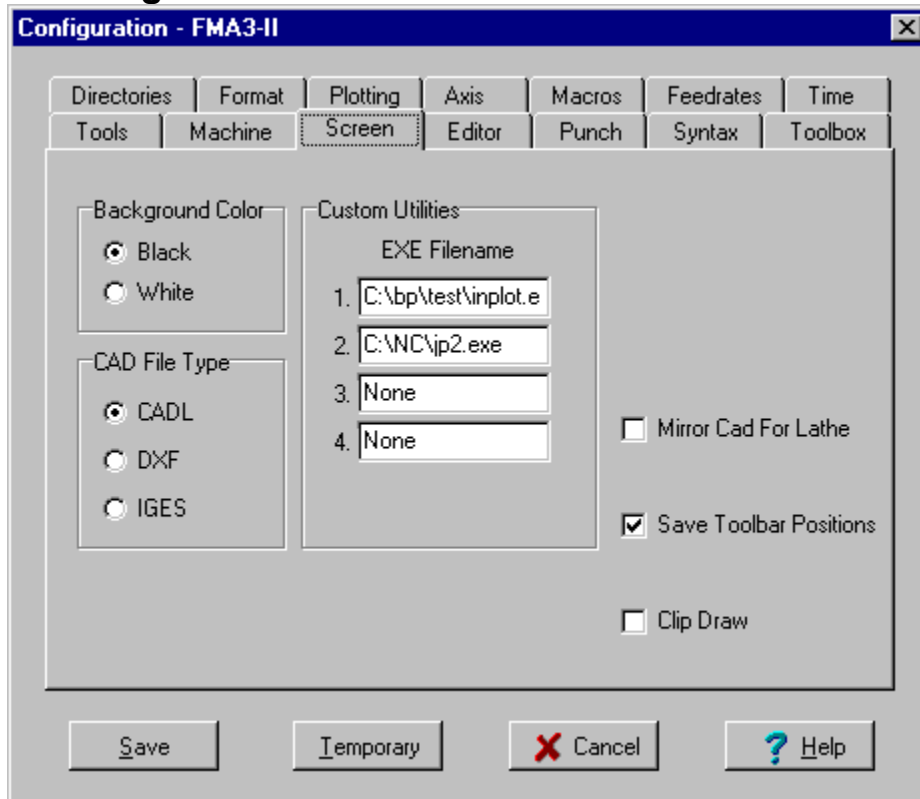
Solid Layer

If you want to change the layer that is used for creating the Solid pictures, enter a different layer number hear.

Solid Tool Color

When 'Solids' is checked on the Main Menu, the cutting of the tool can be shown either as black or in a color. When 'Change Each Tool' is checked, the color of the tool will change at every 'T' or 'M6' code.

_____

Configure: Screen

Background Color - The background of the plot window can be set to either black or white.

CAD File Type

CADL files are CAD drawings saved in an ASCII text file format originated by CADKEY. INPLOT only supports line, arc, circle and point element types. Tool Files used in INPLOT must be in CADL format.

DXF files are CAD drawings saved in an ASCII text format originated by AutoCad. INPLOT only supports line, arc, circle, point and polyline element types. Polylines are turned into individual lines.

IGES files are CAD drawings saved in a public standard ASCII text format. INPLOT only supports line, arc circle and point element types.

Custom Utilities

CAM Menu has places for 6 application filenames. The names are put in here. When the menu item is clicked, the application is started with the WinExec function.

If Mirror Cad For Lathe is checked, then when the CAD file is displayed, it is duplicated and mirrored across the centerline to show the other half of the part. With this, you only need to draw the top section of the lathe part and it will be displayed in both halves for the Twin Turret option.

Check Save Toolbar Positions if you want to save them in different positions than the default. The positions of the toolbars at the time of exiting the program will be saved.

Clip Draw -- Some graphics cards loose some lines and arcs when zooming up close. Check Clip Draw and Inplot will break them up into smaller segments. This may make the redraw display slower.

Configure Syntax
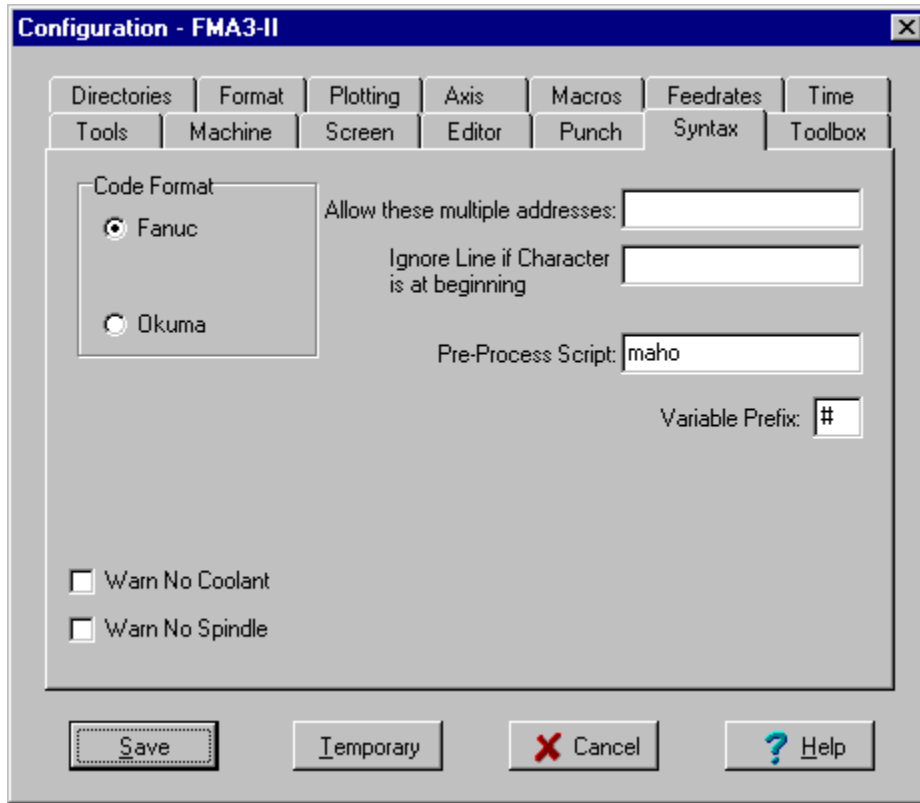
Multiple Addresses

Checking Syntax will report an error when it finds more than one of the same address on a line (except for G codes). If on your machine control it is not an error to have several of the same address (like M codes), then enter those addresses in the edit box.

Ignore Line

If there are lines that start with a special character and they should be ignored by Inplot, enter those beginning characters into the edit box.

Warn No Coolant

Will display error message box when 'Coolant' on Plotting page is checked and Inplot plots a feed move when the coolant hasn't been turned on yet in the program.

Warn No Spindle

Will display error message box when 'Spindle' on Plotting page is checked and Inplot plots a feed move when the spindle hasn't been turned on yet in the program.

Variable Prefix

Fanuc variables start with '#'. This can be set to a different character for other controls.
Like #23=3.0
or

V23=3.0

Name of script that will be used as a pre-processor during plotting. If there is a name here, Inplot will attempt to load it. If successful, it will be used for all plotting until a different machine configuration is chosen. See also Pre-Process Script

_____

Configure: Macros

When plotting the NC file and the Macro option is checked in the Configuration Plotting dialog box the file will be checked for macro calls to a subprogram.

When Inplot comes across this address and value it branches to the subprogram and returns when it finds the code M99.

Dialog Box defines where Inplot will jump to when it finds a user defined code.

Search String is normally the address , but could be any string of characters.

Value is the value that is after the search string in the NC file.

Program Number is the program number of the separate program. This program can be in the editor at the same time, or in a separate NC file by this name. Ex: 9010.NC

The macro calling variables are stored in Fanuc format and can be used in the called subprograms.

_____

Configure: Directories
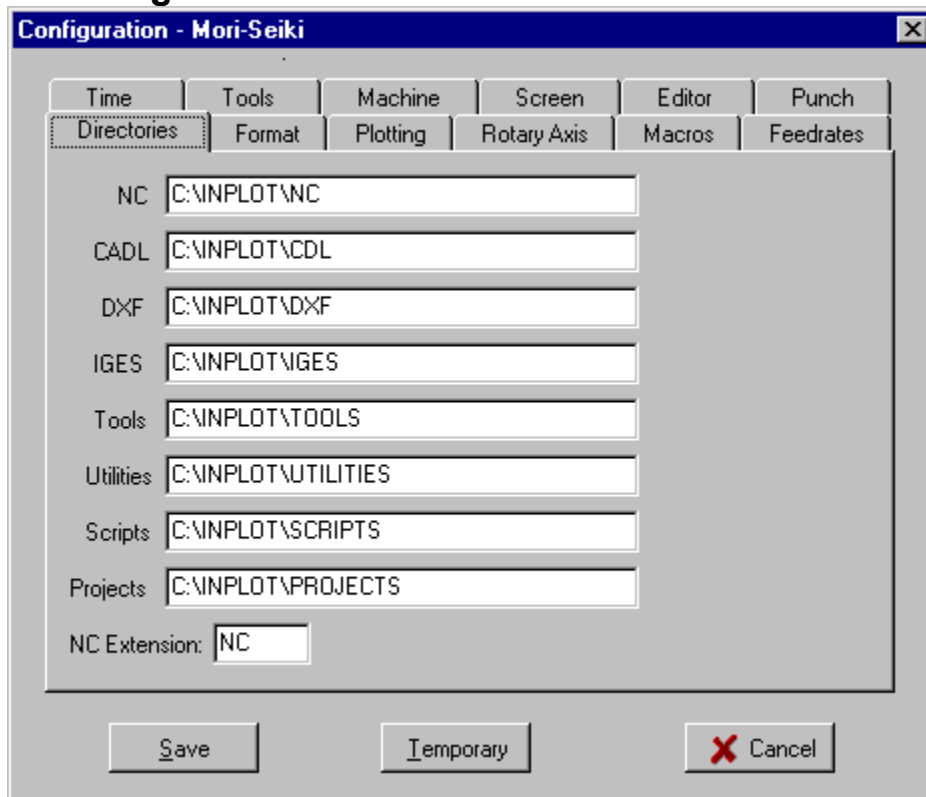
Dialog box displays default directory paths for:

NC Path	default path for NC files.
CDL Path	default path for CADL CAD files.
DXF Path	default path for DXF CAD files.
IGES Path	default path for IGES files.
Tools Path	default path for CADL drawings of tools.
Pictures Path	default path for bitmaps and metafiles.
Scripts Path	default path for editor scripts and keyboard macros.
Projects Path	default path for project files.
NC extension	default extension for NC files.

These settings are saved to the configuration file when you choose the Save button. You can save them for this session only by choosing the Temporary Button.

_____

## Configure: Feeds

When the toolpath is plotted, feedrates are checked to see if they are higher than either of these two values.

If a feedrate is higher than the first value then the toolpath is plotted in the rapid color. This will give a visible warning of possible errors in the feedrate.

The second value is an intermediate value. If a feedrate is higher than the second value, the toolpath is plotted in red color. This can give a visual warning of faster feedrates.

_____

Configure: Plotting
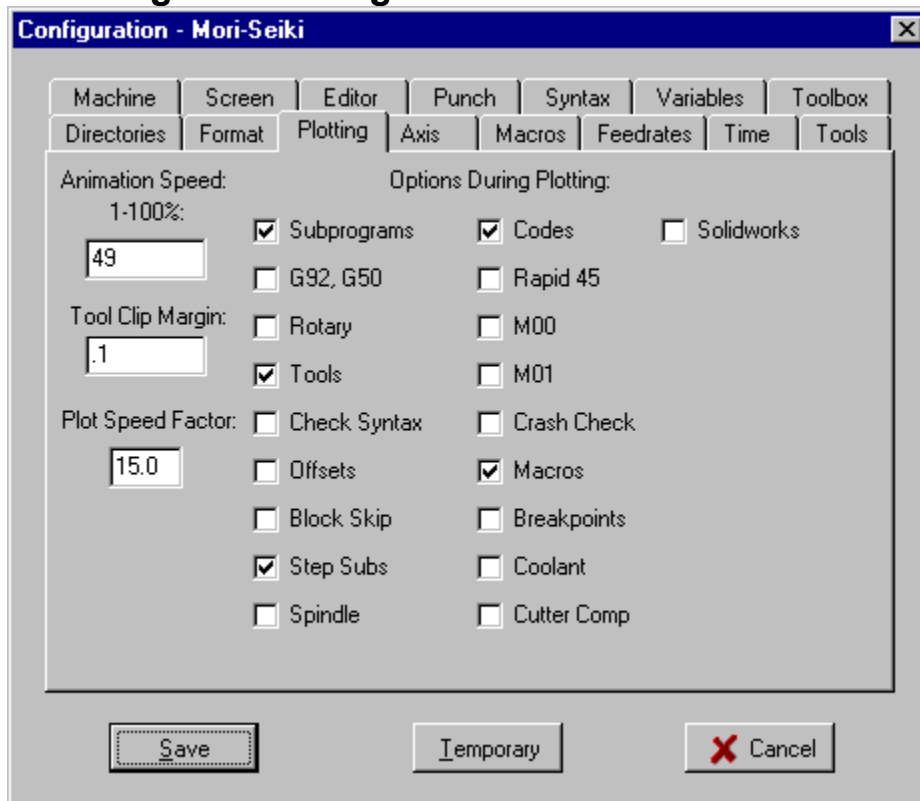
Animation Speed

Animation only operates when Animation main menu item is checked.

The default value on startup is set with the Animation Speed entry.

When plotting, control the speed of the tool animation with the slider control.

Plot Speed Factor

Adjusting the range of speed for faster and slower computers can be set with this number. Setting to a smaller number will make a range of faster speeds for the slider control. If the animation range is too fast enter a bigger number.

Clip Tool Margin

During animation of tool, if the tool point is more than this amount out of the window (in window scale inches), the picture of the tool will not be plotted. This means that when you have zoomed in to a small section of the part, Inplot will run faster by skipping the plotting when the tool is off the screen.

Options available during plotting the toolpath.

Subprograms

NC codes M98, M99, G65 and user G codes over 100 are activated.

If this item is checked, when "M98" is found during plotting Inplot will look through the all the text in the edit window starting at the beginning until it finds a program number the same as in the P address on the M98 line. If not found, Inplot will look for a file in the NC directory with that name. With this you can have the subprograms in external files. If this is

not found, then an error message is displayed.

Block Skip

When this item is checked, lines in the editor that have "/" at the beginning will not be plotted.

G92, G50

If this item is checked, the system will take the X, Y and Z values on the line with "G92" or "G50" and move the origin on the plot window to represent the new values. All plotting after that will be in relation to the new origin.

Only the axis that is the G92 block will be affected.

Rotary

When this item is checked, and Inplot is in Milling mode, the values found in the A, B and C axis moves will rotate the plotted tool path around the specified axis. See also: Configure Rotary Axis

Tools

If this item is checked, pictures of tools will be loaded when the comment code "(TL" is found. See also: TL, TM

Check Coolant

if this menu item is checked, the tool path will be plotted in white color when the coolant has not been turned on.

Offsets

When this is checked, plotting will use any offsets that are loaded, either with the 'TOF' comment code or using the G10 code to load G54-G59.

The "(TOF" comment code will operate when this menu item is checked. See also: TOF

Macros

Enables jump to subprogram when encounter certain characters. See also: Macros

Codes

None of the Comment Codes will operate unless this menu item is checked.

M00

Enables the plotting to stop when "M00" is encountered in the file.

M01

Enables the plotting to stop when "M01" is encountered in the file.

Check Syntax

Enables checking for errors in the text of the editor during plotting.

Step Subs

Enables stepping through the subprograms during plotting. Otherwise calls to sub-programs will plot the sub-program but will not highlight the lines of the sub-program in the editor.

Rapid 45

Enables rapid moves during plotting to be shown as a 45 degree path to accurately show the movement on some machines.

Breakpoints

This allows you to set breakpoints in the text editor. Make a breakpoint on a line by holding down the Ctrl key and click the line with the left mouse button. Remove the breakpoint by holding down the Alt key and clicking on that line.

Crash Check

When Crash check is enabled and Solids is turned on and the solid part is drawn in the lightgray color, Inplot will check if the tool path hits the part during rapid moves.

Check Spindle

When Check Spindle enabled, Inplot will check if the spindle has been turned on before the machine has a feed move.

Cutter Comp

Enables showing the offset toolpath during cutter compensation, G41 and G42, simulating the path as it would be on the machine. The amount of the tool offset is entered in the Tool Radius Offset Dialog Box in 'Amount to Add to Radius'. Values can be entered into this amount with the 'TOR' Comment code .

SolidWorks

When this is checked, Inplot will send instruction to the SolidWorks software to animate a model of a machine tool, allowing a machine simulation of the CNC program. The Solidworks software must be running at this time, otherwise make sure this is turned off. See: SolidWorks.
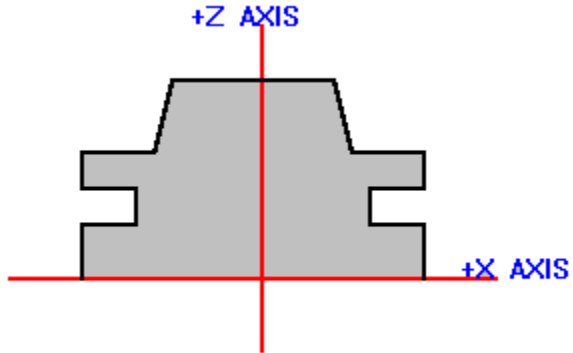

See: Configuration

_____

Orientation: Vertical

When this menu item is check, the CAD file and all drawing and plotting on the plot window is displayed pictured as it would look in a Vertical lathe.

X axis goes right and left, Z-axis goes up and down.

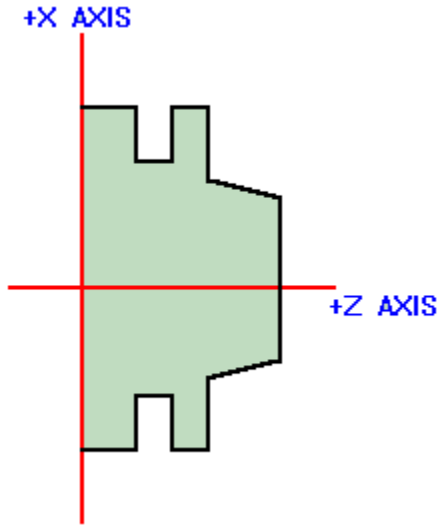This takes a CAD file drawn in the normal horizontal position and displays it in vertical position.

See also: Orientation Horizontal

_____

Orientation: Horizontal

When this menu item is check, all drawing and plotting on the plot window is pictured as in a Horizontal lathe.

X axis goes up and down, Z axis goes right and left

See also: Orientation Vertical

_____

Save Settings

You can save the configuration changes you made by choosing the Save button on the Configuration dialog box.   This saves the settings to the machine format file that is currently active.

See also: Format

_____

Animation Setting

Control the speed of the tool animation with the slider control.

Dialog box adjusts the speed that the tool moves across the screen when the menu item Interpolate is checked.

Move the scroll bar to up or down, from 1 to 100, to go faster and slower.

The default value on startup is set in INPLOT.INI with the PlotSpeed variable.

Adjusting the range of speed for faster and slower computers can be set with the PlotSpeedFactor variable. Setting to a smaller number will make a range of faster speeds.

See: Configuration

_____

Calculator

Calculator

[Triangle](#)
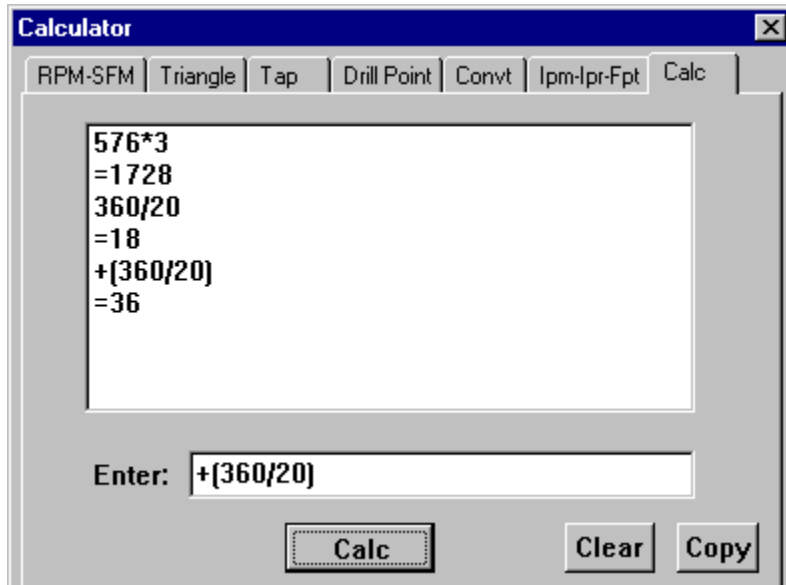
[Inches per Minute – Inches per Rev](#)

[Inches – Millimeters](#)

[Surface Feet – Diameter – RPM](#)

[Tap Feed – RPM](#)

[Drill Point](#)

_____

Calculate: Calculator

```
Calculator                                    ☒
┌──────────┬─────────┬─────┬───────────┬──────┬───────────┬──────┐
│ RPM-SFM  │ Triangle │ Tap │ Drill Point │ Convt │ Ipm-Ipr-Fpt │ Calc │
└──────────┴─────────┴─────┴───────────┴──────┴───────────┴──────┘

   ┌──────────────────────────────────────┐
   │ 576*3                                  │
   │ =1728                                  │
   │ 360/20                                 │
   │ =18                                    │
   │ +(360/20)                              │
   │ =36                                    │
   │                                        │
   │                                        │
   │                                        │
   └──────────────────────────────────────┘

   Enter:  │+(360/20)                        │

              ┌──────────┐      ┌───────┐ ┌──────┐
              │   Calc   │      │ Clear │ │ Copy │
              └──────────┘      └───────┘ └──────┘
```

A scrolling list box records all the calculations you perform.

Enter the expression and press the Calc button or Enter on the keyboard. If the first character is an operator then it will be added to the last result.

Operators: +, -, *, /, ^, :, (,)

Functions: ABS, ATAN, COS, EXP, LN, ROUND, SIN, SQRT, SQR, TRUNC

Also function for finding Mean of two numbers. Ex: mn(1.034,2.012)

Clear - clears the results listing.

Copy - highlighting lines in the list box and pressing Copy will put them in the windows clipboard.

_____

Calculate: IPM-IPR

Fill in the known values and click the 'Find' button next to desired value. The names of the values it uses to calculate the answer will be highlighted in red.

_____

Calculate: Drill

Calculator

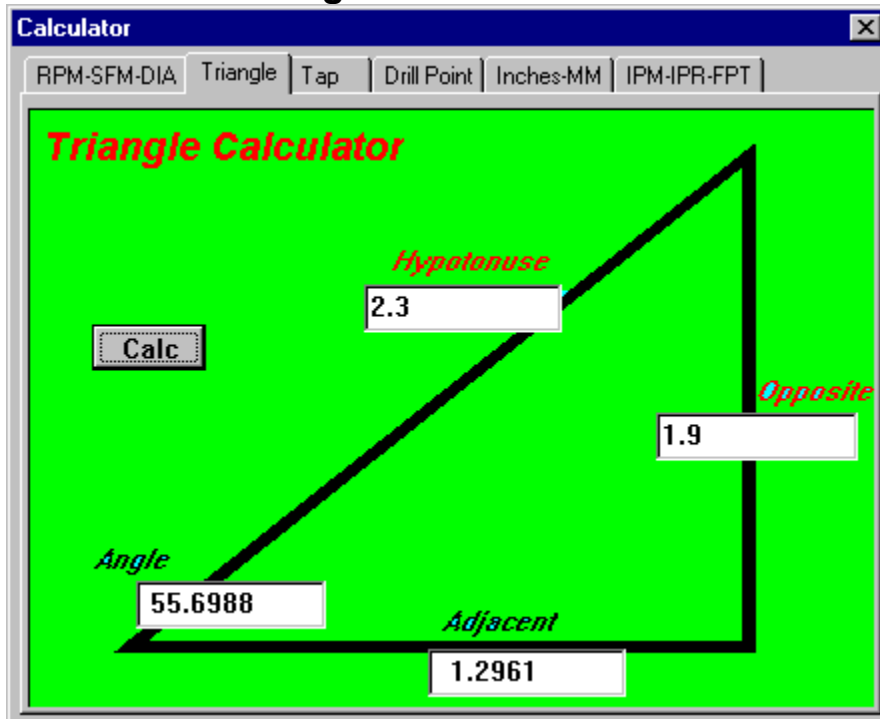| RPM-SFM-DIA | Triangle | Tap | Drill Point | Inches-MM | IPM-IPR-FPT |

Drill Point Inc Angle: `120`   [Find]

Drill Diameter: `.375`   [Find]

Depth to Point: `1.1083`   [Find]

Depth to Corner: `1`   [Find]

Fill in the known values and click the 'Find' button next to desired value. The names of the values it uses to calculate the answer will be highlighted in red.

_____

Calculate: Triangle

Fill in the known values and click the 'Find' button next to desired value. The names of the values it uses to calculate the answer will be highlighted in red.

_____

Calculate: RPM-SFM-DIA

Fill in the known values and click the 'Find' button next to desired value. The names of the values it uses to calculate the answer will be highlighted in red.

_____

Calculate: Convert

Calculator

RPM-SFM | Triangle | Tap | Drill Point | Convt | Ipm-Ipr-Fpt | Calc

Inches = **Millimeters:**

| Find | 25.5000 | | 647.7013 | Find |

Decimal Degrees = **Degrees, Min, Sec**

| Find | 30.7889 | | 30,47,20 | Find |

Actual IPM   **Radius**

| Find | 5.0 | | 12.0 | Find |

Degrees Per Minute

| 23.8732 | Find |

Enter a value into the box on one side and press the Find button on the other side.

_____

Calculate: Tap

Fill in the known values and click the 'Find' button next to desired value. The names of the values it uses to calculate the answer will be highlighted in red. If you want to clear

_____

Plot Buttons

When NC file is loaded in Editor these buttons are will plot the toolpath in the Plot window.

PLOT

■ Plots one line of text at a time.

SELECTION

≡ Plots the selected lines of text.

AUTO

▼ Keeps plotting lines of the text file starting at the cursor position in the file until either the end of the file is reached or is stopped by pressing Esc or right mouse button. Each line of text is highlighted in the editor as it is processed.
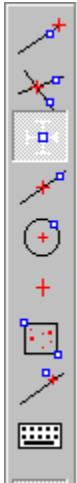
RUN

▼ Same as AUTO except cursor does not move in the Edit Window and text lines are not highlighted. This increases the speed of output.

RESET

▲ Resets Edit Window to beginning and resets NC program variables and subprograms.

_____

Pick Buttons

These buttons allow you to selectively pick points on the CAD drawing with the cross cursor. All the names on the buttons are in lower case letters except the button that is activated, which changes to upper case letters.

END

Picks the endpoint of a line or arc. Click the mouse on the end of the element closest to the endpoint you want.

MID

Picks the midpoint of the line or arc.

CEN

Picks the center of an arc.

INT

Picks the intersection of two lines or two arcs or a line and arc. Click on the element near the intersection so it will be able to choose the right point if there is more than one intersection.

CUR

Get the coordinates of the cursor location.

PNT

Allows you to pick Point elements on the CAD drawing.

KEY

Opens the Key In Dialog Box for entering X,Y,Z coordinates.

WIN

Use mouse to make window around several elements. Not used for picking a point but used for selecting multiple elements to put in a Group

CLO

Picks closest point on an line or arc to where you click with the cursor.

_____

View Buttons

Top View

For <u>System Type Mill</u> , this is the normal X,Y axis view of the CAD file and NC plotting.

Front View

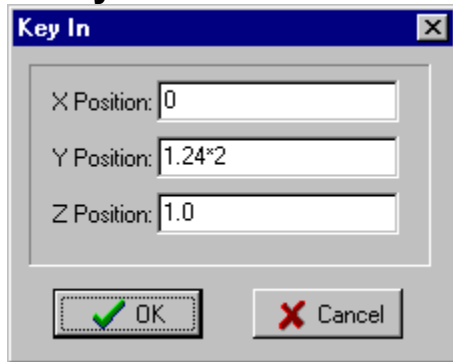For <u>System Type Mill</u> , this is an   X,Z axis view of the CAD file and NC plotting.

Right Side View

For <u>System Type Mill</u> , this is a Y,Z axis view of the CAD file and NC plotting.

Isometric View

When in <u>System Type Mill</u>, this setting will display the CAD file and NC plotting in an isometric view. Holding down Alt key and dragging mouse with left button will dynamically rotate the view.

_____

Key In

Open the Key In dialog box from the pick buttons. Use this when you want to enter coordinates from the keyboard.

_____

Current Layer

The current drawing layer is displayed on the status bar.

Set the current drawing layer in the Layers dialog box by clicking on current layer number displayed on the status bar. This does not affect what layers are visible or what geometry elements can be picked.

See also: Layers On, Solids

_____

Insert Arc Button

The Insert Arc button will insert the G02 or G03 move with the end point and I,J,K only.
If you also want the start point of the arc then press the XY or XZ button first and then the Arc button.

_____

Insert CAM Buttons
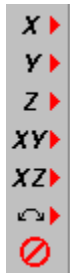
These buttons are used for inserting the position values obtained with CAM functions.

After moving the tool to the desired position, press one of these buttons to insert that address value in the line at the cursor position in the editor.

If there is already that address on that line the value is replaced with the new value. Otherwise, that address is added to the end of the line.

See Also: Insert Arc Button

The bottom button is the Edit–Undo button.

_____

Tool Path Buttons

The sliding control is for controlling the animation speed. If the whole range is too fast or too slow, change the Plot Speed Factor on the Plotting page in the configuration dialog box.

The button turns the tool animation on and off.
The record toolpath button. See: Record Toolpath

_____

Status Bar

ANALYSE	Pick Element	Lathe	OKUMA	modified	Lay=	A	

Command — Prompt — System Type — Machine Name — File Changed — Current Layer — Tool Name
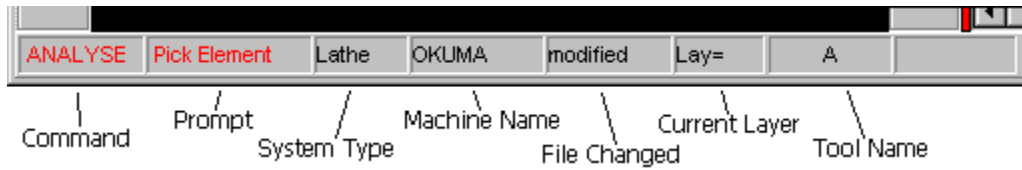
Clicking on the Tool Name Area will bring up the Load Tool dialog box.

Clicking on the Current Layer Area will bring up the Layers dialog box.

Clicking on the Machine Name Area will bring up the Configuration dialog box.

_____

Current Color

The current drawing color is indicated in the combo box on the status bar .

To change the current drawing color, click on the color box on the status bar. A list of available colors will drop down. Click on the new color you want.

All new elements created will then be drawn in that color.

.

_____

Shortcut keys

Shortcut keys for menu items:

F1	Zoom Window
Alt-F1	Zoom All
F2	Zoom Last
Alt-F2	Zoom Half
F3	Redraw
Alt-F3	Solids
F4	Play Keyboard Macro
Ctrl-F4	End Recording Keyboard Macro
Alt-F4	Quit
F5	Find
Alt-F5	Find Again
F6	Load NC
Ctrl-F6	Save NC
Alt-A	Save NC As
F7	Load CAD
Alt-F7	Save CAD
F8	Tool Animation
Alt-F8	Merge NC
F9	Axis
Alt-F9	Replace
Alt-F10	Print NC
F11	Plot one line
F12	Analyze Element
Alt-F12	Analyze Two Points
Alt-T	Tool - Tangent
Alt-A	Tool Arc
Alt-C	Tool Contour
Alt-R	Tool Corner
Alt-P	Tool Point
Alt-I	Tool Intersection
Alt-G	Tool Tangent-Point
Alt-D	Tool Tangent-Drag
Alt-O	Offset
Alt-H	Help
Alt-Down Arrow	Plot one line

Ctrl-Left Mouse Button Drag in Plot Window   Move CAD drawing in plot window

Alt-Left Mouse Button Drag in Plot Window   3-D Rotate CAD drawing in plot window when in ISO view

Ctrl-Left Mouse Button in Edit Window   Set Breakpoint in editor

Alt-Left Mouse Button in Edit Window   Remove Breakpoint in editor

Ctrl- Number 0 - 3 Inserts G00 - G03 at cursor line in editor

_____

Comment Code

Comment Code

Comment Codes are made by the start comment character and the two or three letter code *without any space in between*. As in: '(TL ' *And a space after*.

The 'Codes' checkbox must be checked for these codes to operate. See: Configuration, Plotting .

TL Loads tool into memory for display during plotting.

TOF   Offsets position of tool during plotting.

TIB Turns on tool animation.

TIE   Turns off tool animation.

TW   Sets scale of plot window.

TRD   Redraws screen.

TC Move display coordinates of center of screen.

TRS   Stops plotting during RUN or AUTO.

TSP   Sets speed of tool animation.

TBT   Turns block skip on.

TBF   Turns block skip off.

TS   Process a string.

TM Milling tool definition.

TXT   Reads and plots external NC file.

TRZ   Rotates tool path around Z axis.

TRX   Rotates tool path around X axis.

TRY   Rotates tool path around Y axis.

TTM   Adds amount to running time.

TDT   Inserts Date and Time into NC program when saved.

TMR   Punch Man Readable characters on tape.

TPD   Punch Date and Time in Man Readable characters.

TRT   Turns on rotary mill angle support.

TRO   Turns off rotary mill angle support.

TOR   Set the current Tool Radius Offset.

TSW   Switch Axis.

CDL   Load CAD File.

TPB   Print Bitmap file on NC printout.

TPM   Print Metafile Picture file on NC printout.

TMC   NC Macro output comment.

TMO   NC Macro output string.

Comment Code TMO

This code is for outputting a line of NC code to a file during the Macro Out function.

See the NC Macro Out function for examples.

_____

Comment Code TMC

This code is for outputting a comment line to a file during the Macro Out function.

See the NC Macro Out function for examples.

_____

Comment Code CDL

This code loads a CAD file into the plotting window. With this you can automatically load in different CAD files at different locations in the program during plotting. After the code enter the filename. If there is no file extension it defaults to '.CDL'. If there is no drive in the filename, it defaults to the CAD pathname in Configure: Directories. Ex: (CDL TOPFACE.CDL)

_____

Comment Code TIB

This code enables tool animation. You can turn the tool animation feature on and off with TIB and TIE. In Solids view the tool animation is always on.

See also: Comment Codes

_____

Comment Code TIE

This code disables tool animation. You can turn the tool animation feature on and off with TIB and TIE. In Solids view the tool animation is always on.

See also: Comment Codes

_____

Comment Code TDT

If you put a comment line in the first 10 lines in the program with the comment code TDT, then whenever the file is saved Inplot will automatically insert the current date and time into that comment line. Ex.: (TDT 3/10/98, 11:31:36 AM)

See also: Comment Codes

_____

Comment Code TPD

When punching a tape, if Inplot finds the comment code TPD the Date and Time will be punched out on the tape in man readable characters.

Ex: (TPD)

See also: Comment Codes

_____

Comment Code TMR

When punching a tape, if Inplot finds the comment code TMR then any characters after that in the comment will be punched out on the tape in man readable characters.

Ex: (TMR P/N 4590 OP.20)

See also: Comment Codes

_____

Comment Code TTM

This Code is used during time calculations. A value after this code in the comment will become the blocktime and will be added to the running total time.

The value is in decimal minutes. Ex.: (TTM 2.5)

See also: Comment Codes

_____

Comment Code TBT

This Code turns on the block skip function so that when plotting, if the '/' character is found at the beginning of the line, the whole line will be ignored.

The Block Skip checkbox must checked in Configuration Plotting to enable this function.

Ex.: (TBF)

See also: Comment Codes

_____

Comment Code: TBF

This Code turns off the block skip function so that when plotting, the '/' character at the beginning of the line will be ignored.

The Block Skip checkbox must checked in Configuration Plotting to enable this function.

Ex.: (TBF)

See also: Comment Codes

_____

Comment Code: TSP

This Code sets the speed of the tool animation. When this code is found during plotting, the animation speed will be set to the value in the comment. The value is percent from 1-100.

Ex.: (TSP 65)

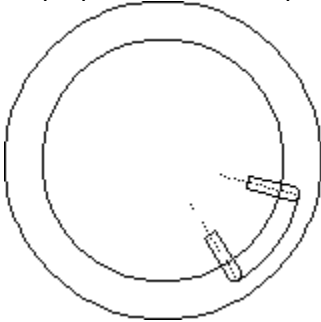See also: Comment Codes

_____

Comment Code TRS

When plotting the file in Auto or Run, the plotting will stop at the point this Code is encountered.

Ex.: (TRS)

See also: Comment Codes

_____

Comment Code TRT

Turns on angle rotary mill support. For showing the toolpath when rotary milling with the tool. This command angles the tool at the same angle as the rotary table command so it is always shown perpendicular to the part.

O0440
G90
G00X0Y-19.0
G01Y-20.300F30.0
G01Y-20.945F5.0
G91C-25.F15.0
G90
G01Y-19.0F30.0
M99

The CAD file is in the normal X,Y view. The tool drawing is made in the position it would appear at 0 degrees.

Ex.: (TRT)

See also: Comment Codes

_____

Comment Code TRO

Turns off right angle head rotary mill support.

Ex.: (TRO)

See also: Comment Codes

_____

Comment Code TC

When this Code is found during plotting, the plot display will be moved to a new location and the screen redrawn. The two values in the comment are the X and Y position to be moved to the center of the screen. Ex.: (TC X12.2Y3.45)

See also: Comment Codes

_____

Comment Code TW

When this Code is found during plotting, the plot display will be redrawn at a new scale with the same current center. The value in the comment is the size the display window represents. If the value is 4.0 this has the effect of zooming the window into a 4.0" high area. Ex.: (TW 1.45)

See also: Comment Code TC .

_____

Comment Code TOF

This Code will set X,Y and Z offset values when found during plotting. When the offsets are set with a value, all plotting after that will offset by that amount in that axis. This is useful for plotting programs that have coordinates that have been adjusted for tool set lengths etc. Just use this comment code with the compensating amount in the axis value and the plotting will appear on the part geometry where it should. Ex. (TOF X2.0Y1.0Z0)

The Offsets checkbox must checked in Configuration Plotting to enable this function.

 You would have to use (TOF X0Y0Z0) in the program to change the offsets back to 0. Also, pressing plot Reset button sets the offsets back to 0.

See also: Comment Codes

_____

Comment Code TL

Loads a CAD file of a lathe tool to be used for plotting the toolpath.

When this Code is found during plotting Inplot attempts to load the tool file name found in the comment. If the file is successfully loaded, the tool file name will be shown on the status bar. If it could not be loaded, you may see message on the status bar and the previous tool will still be loaded.

Ex.: (TL FACE2A)

Loads picture of tool with the filename 'FACE2A.CDL' from the tool file directory. If no file is found, it is ignored.

If (TL 0) is used, any loaded tool is removed and tool picture is empty.

See also: Tool Drawing, Load Tool, Comment Code, Comment Code TM

_____

Comment Code TRD

When this Code is found during plotting the display window is redrawn.

Ex.: (TRD)

Toolpath is erased, unless it saved with Record Toolpath .

_____

Comment Code TS

When this Code is found during plotting the string contained in the comment is proccessed normally, as if it was not in a comment. With this feature, NC code can be processed normally during plotting, but is commented out for the machine control.

Ex.: (TS #1=.571)

(TS G65X10.0Z#1)

    Can be used for setting variables during plotting.

(TS #2=#2+.5)

(TOF X0Z#2)

See also: Comment Codes

_____

Comment Code TSW

Switch Axis. This code will switch two axes with each other. This can be used to help plot programs that are in a different axis position. The two axes are separated by a comma.

Ex: (TSW X,Z)

See also: Comment Codes

_____

Comment Code TM

Create a milling tool for display during plotting when found in a comment.

This can take one or two parameters.

Example: (TM .75)

This code creates a picture of an end mill .75 diameter.

(TM .75,.375)

This creates a picture of a milling tool .75 diameter with a .375 corner radius on the bottom. Separate two parameters with a comma.

See also: Tool Drawing, Tool List File, Tools, Load Tool, Comment Code, TL

_____

Comment Code TX

Comment Code: TX

Plotting an external file.

Example: (TXT FACE.NC)

When this code is found during plotting the system looks for the file FACE.NC in the directory used for NC files. If it is found the system will plot all the lines in that file before returning to the editor window and continuing. The external file is not shown in the edit window while it is plotting. Subprograms are not allowed in the external file. If the filename extension is not given in the comment code line the default NC extension is used.

_____

Comment Code TRZ

This code will set INPLOT to rotate all plotted moves in the NC program.

Example:

(TRZ 45.0)

After this code is read, all the next coordinates plotted will be rotated around the Z origin 45 degrees.

The Z origin is affected by the G92,G50 block

See also: Comment Code, Rotary Axis

_____

Comment Code TRX

This code will set INPLOT to rotate all plotted moves in the NC program.

Example:

(TRX 45.0)

After this code is read, all the next coordinates plotted will be rotated around the X origin 45 degrees.

The X origin is affected by the G92,G50 block

See also: Comment Code, Rotary Axis

_____

Comment Code TRY

This code will set INPLOT to rotate all plotted moves in the NC program.

Example:

(TRY 45.0)

After this code is read, all the next coordinates plotted will be rotated around the Y origin 45 degrees.

The Y origin is affected by the G92, G50 Block .

See also: Comment Code, Rotary Axis

_____

Comment Code TOR

Adds an amount to the already defined tool radius. Inplot normally obtains the tool radius from the tool definition as in '(TL TOOL1)' or (TM 0.5). You can add or subtract from this amount by inserting this code in a comment with a value, as in: (TOR 0.010) adds .01 to the radius that was defined in the load tool comment code.

This is the same value that can be inputted by the Tool Radius Offset Dialog box.

See also: Comment Codes

_____

INPLOT.INI

This initialization file tells Inplot about the different format files available to it. The start of the file must start with the heading "[MachineINI]"

Each line after that has a machine number and the path and filename of the file that contains the format settings for that machine number. The maximum number of format files is 6.

Example of inplot.ini file:

[MachineINI]

;change the next line to the install directory if different

MachineDir=c:\inplot

Machine1=WBVTL

Machine2=Okuma

Machine3=Milling

Machine4=Psion

Machine5=Devlieg

See also: Machine Format File

_____

Machine Format File

The machine format file contains items that will set the configuration of Inplot when it is read in. Any item not in the format file will be set to its default value.

This is an example of some of the items found in the file:

[INPLOT]

MachineName=OKUMA

CDLPathName=C:\SURFCAM\CDL

DXFPathName=c:\NC

NCPathName=C:\surfcam\inc

IGESPathName=c:\nc

ToolPathName=C:\INPLOT\TOOLS

UtilityPathName=c:\BP\TEST

ScriptPathName=c:\inplot

ProjectPathName=c:\INPLOT

NCExtention=NCC

; will load last files if 1

RecallFiles=0

; last files loaded

CADFile=

NCFile=

BackGroundColor=0

CADFileType=CDL

Orientation=HORZ

XAxisDimension=DIA

PlotSpeed=32

;Used for left margin size on print NC

PrintMargin=4

;Startup size of edit window in percent of screen

EditWindowSize=35

RapidCutoff=.05

FeedCutoff=.019

BlockIncrement=5

StartBlock=5

;if 1 then will show G00 moves moving at 45 degrees

Rapid45=1

;Ascii or EIA

PunchType=1

;amount of leader and trailer on tape punch

PunchLeader=300

;a wait time between sending characters to tape punch

PunchWait=145

UseDecimals=1

LeadingZeros=0

TrailingZeros=0

;Call macro with address, value, subprogram

Macro1=G,100.0,9010

Macro2=G,110.0,9011

Macro3=G,130.0,9012

A=000.000,1,0,0

B=000.000,1,0,0

C=000.000,1,0,0

D=00,0,1,0

E=000.0000,1,0,0

F=000.0000,1,0,0

G=00,0,1,0

H=00,0,1,0

I=000.0000,1,0,0

J=000.0000,1,0,0

K=000.0000,1,0,0

L=00,0,0,0

M=00,0,1,0

N=0000,0,0,0

O=0000,0,1,0

P=0000,0,0,0

Q=000.0000,1,0,0

R=000.0000,1,0,0

S=000.0,1,0,0

T=0000,0,1,0

U=000.0000,1,0,0

V=000.0000,1,0,0

W=000.0000,1,0,0

X=000.0000,1,0,0

Y=000.0000,1,0,0

Z=000.0000,1,0,0

CommPort=2

CommBaudRate=2400

CommParity=NONE

CommDataBits=8

CommStopBits=2

;smaller plotspeed factor plots faster

PlotSpeedFactor=9.0

ClipToolMargin=.1

SystemType=1

ArcType=1

AddressOrder=ONGXYZVUWIJKABCDEFHLMPQRTS

Exec1=C:\NC\texas.exe

Exec2=C:\NC\jp2.exe

Exec3=C:\NC\nc2aptm

Exec4=C:\INPLOT\inread.exe

RotaryA=1

RotaryB=2

RotaryC=3

Use=1,1,1,0,0,0,0,0,0,0,1,0,0,0,0,0,0,

MirrorX=0

MirrorY=0

MirrorZ=0

; for time utility

Decel=0.000013

PeckDecel=0.0001

Rapid=400.0

;Characters used at start and end of comments

CommentChar=(

EndCommentChar=)

LatheMinus=0

NCExtension=NC

TwinTurrets=0

UpperCase=1

FileSaveStyle=1

CornerRadius=.003

MirrorLatheCad=0

InchesLeader=20

CommHandshake=0

RapidFeed=400.0

Highlight=P,1,S,2,Z,3,

FontName=System

FontSize=8

FontStyle=1,0,0,0

FontColor=16711680

MultiMCodes=0

;layer used for solids

SolidLayer=25

;left margin of printout

PrintMargin=4

_____

Start Program With Parameters

Program can be started with parameters to set the machine format file and/or filename to load into editor. Up to three parameters are available separated by commas.

If the first parameter is a number then Inplot will load that format file according to the INPLOT.INI file.

The second parameter can be the filename of the NC file that Inplot will load.

The third parameter can be the filename of the CAD file to load.

If the first parameter is not a number then it is treated as a filename.

Make an Icon Shortcut to Inplot on the desktop. Right click on the Icon and select 'properties'. Go to the 'Shortcut' tab and add a parameter after the name.
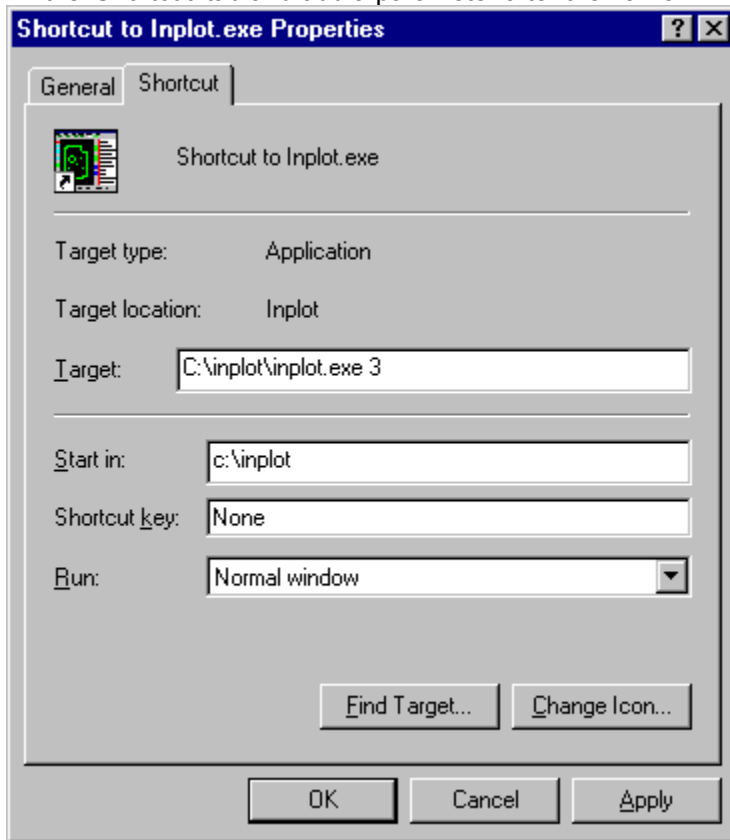
Example:

```
 Inplot.exe 3,c:\part1.nc
```

Or

```
 Inplot.exe c:\part1.nc
```

Or

```
 Inplot.exe 3
```

Or

```
 Inplot.exe 3,part1.nc,part1.cdl
```

Address

A single letter from 'A' to 'Z' that has a numeric value after it.

_____

Angle

Angles are input in decimal degrees.

Zero degrees is at 3 o'clock, and goes counter-clockwise.

_____

Group

A group of elements picked with Group New or Group Add. The group is always shown in the group color. The group can be acted on as a unit, with Xform, Delete, and Change.

_____

Comment Character

The default start and end characters that is used for comments in the program are '(' and ')'.

This can be changed to a different character by entering the characters on the Configuration Editor page.

_____

Select Text

1. Highlight lines of text in the edit window by:
2. Move the mouse cursor to then beginning of the block.
3. Hold down the left mouse button.
4. Move mouse cursor to end of the block.
5. Release left mouse button.

OR:

1. Place cursor at beginning of first selected line.
2. Hold down Shift key.
3. Use UP and DOWN arrow keys (or Page Up and Page Down) to move cursor to last selected line.
4. Release Shift key.

_____

Drawing Solid Tools

1. Load Tool drawing, or draw a new one.

2. Set Current Layer to Solid.

3. Current Color can be any color (color won't show up during plotting).

4. Make points around the desired outline, creating a polygon. The polygon will be automatically closed between the last point and the first point. The points must be in right order around the shape or the filled polygon will not come out the right shape.

5. For making radii on the tools, make circles at those places.

6. Save the Tool File.

The polygon and circles you make on the tool will be filled in black color as the tool moves along during plotting, thereby erasing the color of the solid stock boundary.

The solid area of the tool should be as small as possible, to not slow down the drawing process too much - because the solid area of the tool is redrawn at every step along the tool path.

If some of the lines or arcs you made in the drawing don't seem to be showing up during plotting, it could be because you have some duplicate elements drawn on top of others. This is because the duplicate element is erasing both elements.
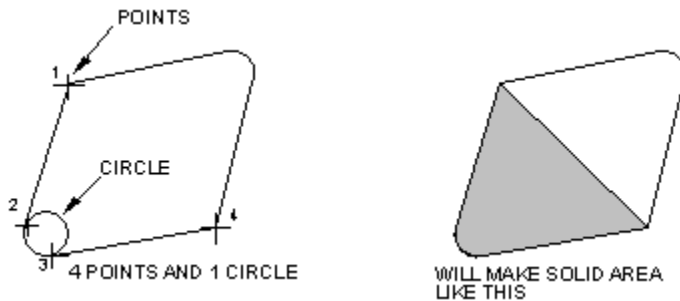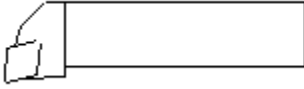
See also: Solids

_____

Window Size

The size of the edit window can be adjusted by dragging the red separator bar next to the window.

The size of the Edit Window at startup can be set in the Editor Page of the Configuration dialog box.

See also:

Configuration

_____

Tool Drawing

Tools shown during plotting are drawn as 2D CAD files and saved in the CADL format. They can be made in any CAD software that can save in that format. Only lines, arcs, circles, and points are supported.

Draw the tool at full scale. Make the X0, Y0 origin of the drawing at the programmed point of the tool. This could either be the theoretical tool point, or the center of the radius.

See Also: Cam Functions

_____

Order Products

Contact I-Logic Software at:

655 Talcottvile Rd. #116

Vernon, CT 06066

Web Site: www.i-logic.com

Web Order Page: www.i-logic.com/order.htm

E-Mail: info@I-logic.com

_____

Result

Result

The result of a Transform operation is grouped together and displayed in the special result color. This result group can then be used for further operations. The result group is cleared by choosing RESET on the main menu.

_____

Record Toolpath

Normally, the plotted toolpath is a temporary picture on the window that will disappear the next time

the screen is redrawn. Clicking the Record Toolpath button   will
plot the toolpath and save the elements as permanent geometry. This will allow you to zoom in and
out, move around, and examine it more closely.
If you save the CAD file, the toolpath geometry will be saved along with it.
You must record the toolpath into geometry in order to print it with Print CAD.

You can delete the saved toolpath with Delete Toolpath .

See: Tool Path Buttons

_____

Breakpoints

You can set a Breakpoint that will stop the plotting on any line in the editor.

 Set the breakpoint by clicking the left mouse button on the editor line while holding down the Ctrl key.

Remove the breakpoint by clicking the left mouse button on the line in the editor while holding down the Alt key.

_____

Print Bitmap

This will send the current plot display to the printer as a bitmap. It will be printed just as it appears. If you want to print the display with the Solid picture or with Tools you will have to use this method.

See Also: Print CAD.

_____

Tool List File

An ASCII text file that holds tool information.

The default name of the file is Tools.txt, and is in the Tool File <u>Directory</u>. Each machine configuration can have its own separate file by entering a different file name in the configuration settings.

A line that starts at the left margin will be made into a Tool Category. Up to the comma is the title, and after the comma is the number of the icon.

Any indented items under the Tool Category will be made into a Tool Name. This consists of three items separated by commas. The first item is the tool description that will be displayed on the list. Next is the number of the orientation icon. Last is the file name of the tool file.

Example:

```
OD Triangle,13
 .031R I.D.,7,CC
 .031R O.D.,1,L
 tpg .031,2,C
ID Triangle,13
OD Square,16
```

_____

Keyboard Macro

```
Start Recording
End Recording    Ctrl+F4
Play             F4
Until Breakpoint Shift+F4
Save...
Load...
```

Start Recording – This will clear the buffer and start recording any keystrokes in the edit window.

End Recording – This will end the recording of keystrokes in the edit window. You can now play back the macro.

Play – Every time you click this or press F4, the characters that were recorded in the macro will now be inserted into the editor at the cursor position.

Until Breakpoint – If the keystroke macro goes across more than one line in the editor, Pressing Shift-F4, will continually repeat the macro until the line the cursor goes to contains a breakpoint. With this feature, you can use a macro that changes or inserts characters in a line and goes to the next line and have it repeat itself over a section of the editor text. Just put a breakpoint at the end of the section that you want to run the macro on.

Save – You can save the current keyboard macro to a file so it can be recalled and used later.

Load – This loads a saved keyboard macro file.

You can load several macro files into the Toolbox and have them available for use any time.

_____

Remove Time

Use this to Remove all the running time comments that were added with the Time utility. Put the cursor at the beginning of the file.

See Also: Configure Time.

_____

Twin Turrets

If you check the Twin Turrets box in Configuration Machine the special functions for Okuma twin-turret lathes will take effect.

The editor will be split into two windows. Programs loaded in will be automatically split and the A turret will be put in the left window and the B turret will be put in the right window. If there is simultaneous turning with both turrets the P numbers will be lined up with each other. Then during plotting the lines in both windows will be read and plotted. If there are movements on both lines then they will be plotted simultaneously.

Since loading and saving the programs involves splitting and assembling, several rules apply to the Okuma programs in order to work right.

1. G13 or G14 should be at beginning of change of turret. Put all tool information and comments after this.
2. Need load tool comment code for each turret to make sure correct tool is loaded.
3. Synchronized tools must be next to each other in the program file.
4. If using both turrets, every G13 or G14 segment should have at least one P number in it.
5. For synchronized turrets, G14 segment should come after the G13 segment in the program file.

You may also want to use the Mirror CAD for Lathe checkbox in Configuration Screen.

_____

Check Syntax

Checks program lines for:

Double Addresses

Illegal Decimal Points

Mismatched Parentheses

Mismatched Brackets

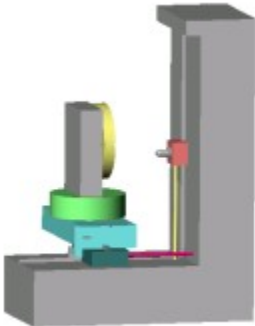Addresses Without Values

Letter 'O'

G codes out of range

M codes out of range

See also: Configuration Syntax

_____

SolidWorks

If you have Solidworks Solid Modeling Software, Inplot can control an assembly file so that it can be used to show a machine simulation during plotting of the NC program.

All you have to do is create all the parts of the machine that you want to show and mate them together into an assembly. Also you have to create some extra parts that will be used to drive each axis.
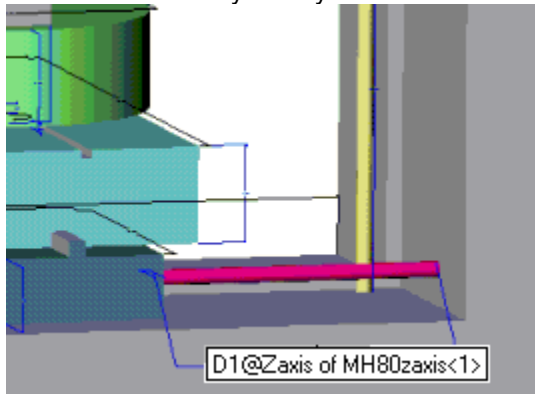
Create one part for each axis and name the length dimension the name of the axis.

Mate the tables and spindle to rails on the base so they can slide back and forth.

Mate one end of the axis part to the table you want it to move, and the other end to the base.

For rotary tables, you can make a pie shaped cutout on the bottom that has a controlling angle dimension. Mate one edge of the pie cutout parallel to the table.
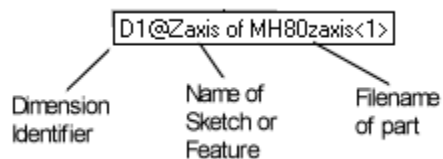
Dimension Identifier must be 'D1'

Name of Sketch or Feature must be 'Xaxis', or 'Yaxis' or 'Zaxis' ,or 'Axis', or 'Baxis', or 'Caxis'

The filename that the part is saved under must be put in the Configure Axis page.

When 'Solidworks' is checked in the Configure Plotting page, Inplot will send commands to the

Solidworks program to change the dimension values of these items that control each axis.

See example files on our web site: www.i-logic.com
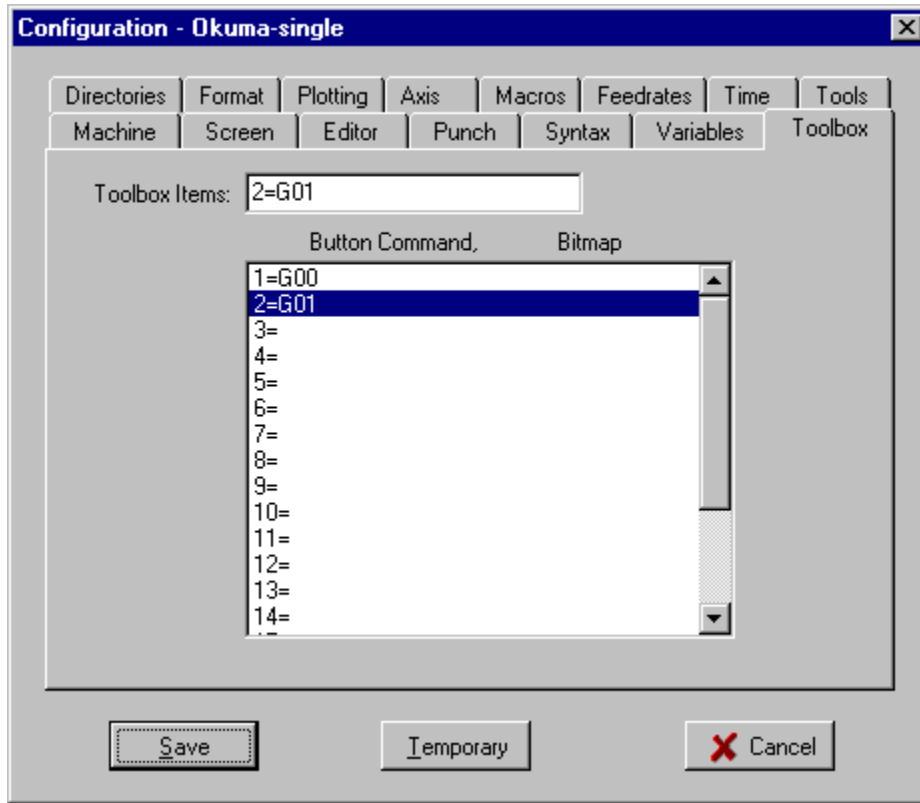
_____

ToolBox

Custom commands can be loaded into the Tool Box buttons.

There are several types of commands that can be used.

The commands are loaded into the buttons on the Configure: ToolBox page.

_____

Configure: ToolBox

There are several ways to enter commands into the Tool Box buttons.

Addresses with values

An address with a value will be inserted into the line formatted to the current format and placed in order according to the Order String . Ex: 2=G01

Character strings.

Any characters will be inserted at the end of the line when enclosed in single quotes. Ex: 2='test'

Keyboard Macros.

Any Keyboard Macro can be loaded into a button by a command with a '@' character in front of the keyboard macro filename. Ex: 2=@test will run the keyboard macro file 'test.mac'

Script Commands

Any Script Command can be loaded into a button by a Script command with a '~' character in front. Ex: 2=~MERGE test will merge a file named 'test.nc' at the current cursor location.
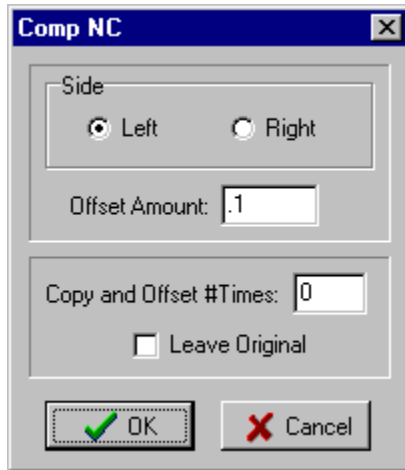
Script Files.

A Script File can run when you press a toolbox button by loading the script filename with the '&' character in front of it. Ex: 2=&test will run the script with the file name 'test.scr'

Adding a bitmap to the button:

Put a comma at the end of the line and then the file name of a bitmap to be used on the face of the button. Ex: 2=G01,Feedbmp

_____

Comp NC

With Comp NC you can highlight a section of text in the editor containing a toolpath and offset the contour evenly all around by the Offset Amount. Set Left or Right to choose the offset direction as it follows the existing toolpath.
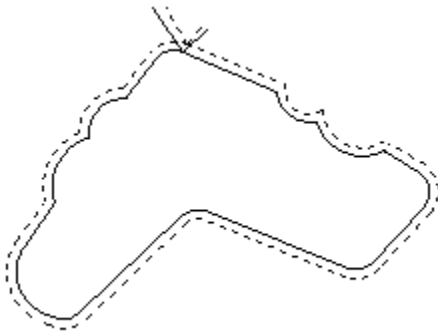
Solid line shows original toolpath in editor. Dotted line shows toolpath after Comp NC.

Contour to offset should have lead in and lead out lines for best results.

Copy and Offset # Times. This feature will offset the highlighted text, duplicate it in the editor, then offset the duplicate text, for a number of times. Each duplicated section will be further offset by the same amount. This has the effect of making several passes, each incremented by the amount. If Leave Original is checked, the first pass will not be offset.

A section of text must be highlighted.

_____

_____
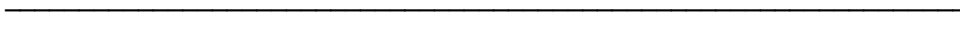
Contour
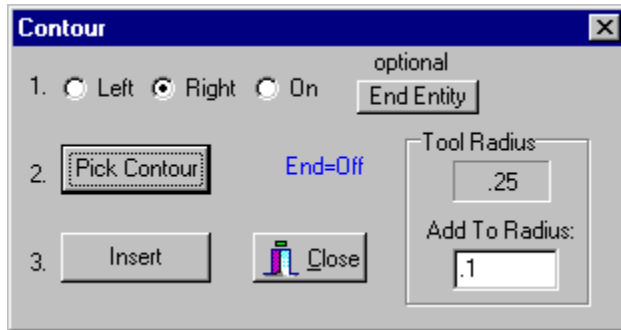
Pressing the Contour button   will bring up the Contour dialog Box.
This will allow you to chain a series of connected entities automatically and input the toolpath to the
editor. You pick the start end of the first entity and Inplot will chain together all the connected entities.
The radius of the currently loaded tool is displayed in 'Tool Radius'. You can add or subtract from this
radius by entering an amount to 'Add To Radius'. The toolpath will be offset to the left or right side by the
sum of these two amounts.

1. First choose the side of the contour to offset the tool towards. Looking at it as though you were
standing on the contour line walking from start to finish, do you want the tool to be on the Left or
Right side of the contour? 'On' means the toolpath and center of the tool will be exactly on the
middle of the line.

    Optionally, you can choose an entity along the contour to stop at. Press the 'End Entity' button and
pick some entity along the contour.

2. Press the Pick Contour button and then pick the first entity along the contour. Pick the entity on
the start end. Chaining will go from there to the other end of that entity and continue until the last
entity or the 'End Entity' you picked. The toolpath will be displayed.

3. If the new path looks right you can insert it into the editor at the cursor position by pressing the
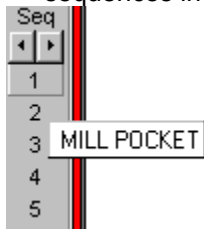'Insert' button.

_____
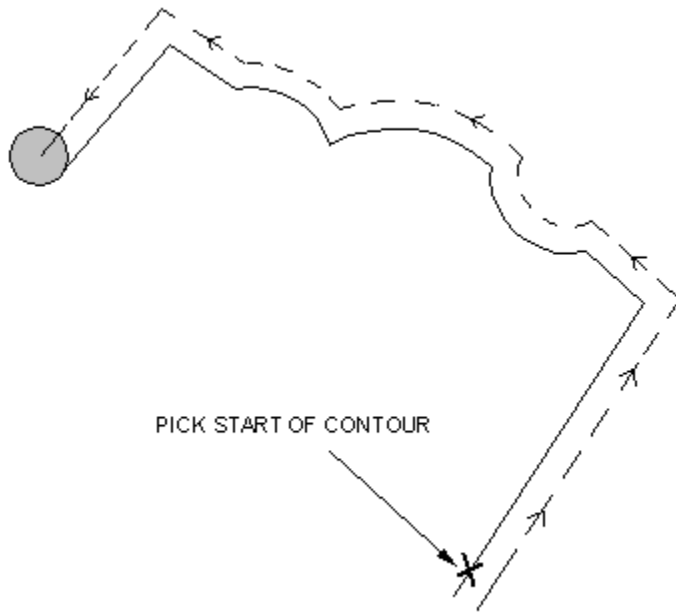
PICK START OF CONTOUR

Sequence

The Sequence feature will create a numbered list on the toolbar allowing you to jump to different tool sequences in the program. This is helpful for moving around those long programs with lots of tools.

Pressing on 'Seq' will go through the whole program searching for 'TL ' and 'TM ' comment codes and load the tool name and comment information and load it into the buttons below.

Sequence is looking for comments in the form of (TL A :FINISH FACE). The lathe tool file is named 'A.cdl', and a comment can optionally be placed after a colon.

The comment will be placed in the popup hint on the numbered buttons. Now when the mouse moves over the numbered buttons, the popup hint will show the description you put in the comment, and a small window on the plot screen will show what the tool looks like. When you find the tool you are looking for, press the button and the cursor will jump to that point.

Only lathe tools will be displayed.

Under 'Seq' are the scroll buttons. When you have more than 10 sequences, pressing the scroll buttons will move forward and back to the next 10.

_____

Macro Variables

Inplot can understand Fanuc macro variables for assigning values and plotting.

You can assign values to variables as in:

```
#1=7.2
#1=#2
#1=[#1*2]
G01X#1F1.0
```

Supports logical operations: EQ, NE, GT, GE, LE, LT

Supports IF, THEN, GOTO as in:

```
IF[#1EQ#2]THEN #3=0
IF[#3LT#1]GOTO 10
```

Supports ROUND, SIN, COS, TAN, ATAN, SQRT, ABS, EXP, LN, FIX

```
#2=ROUND[#2*#4]
S[#2]
```

Supports WHILE DO loops.

See Also: Script , Plot Status , Macro Out , Macros , Plot Buttons , TS

_____

Comment Code TPB

Use this code to print a bitmap file at the current place when the NC program is printed.

Example: (TPB c:\inplot\cdl\part1)

The default directory for the bitmaps is Picture directory . The default extension is 'bmp'.

Comment Code TPM

Use this code to print a Windows Enhanced Metafile (emf) at the current place when the NC program is printed.

Example: (TPM c:\inplot\cdl\part2)

The default directory for the bitmaps is Picture directory . The default extension is 'emf'.

Pre-Process Script

Inplot specializes in FANUC type program code, but with this feature a script can be attached to plot button so that as Inplot goes through the editor, each line can be processed before it is sent to Inplot to be plotted. Every line can be interpreted, changed, or modified -- so it is possible to make a pre-process script that will understand the special codes or variables in the program.

You attach this script to the plot button by putting the name of the script in the machine configuration settings. Every time the plot button is pressed, the script is run for that line.

A script that just had this line:

PLOT,$

would pass through the current line in the editor to Inplot to be plotted. This would plot the same way as without a pre-process script.
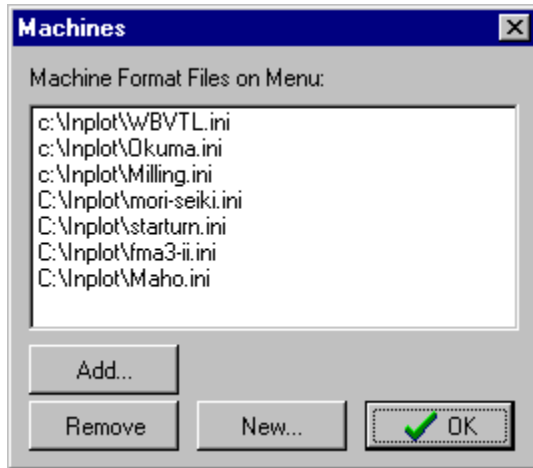
A script that had this line:

PLOT,G#11X#1Y#2Z#3F#4

would substitute whatever values were in those script variables and send it to Inplot to be plotted.

See Script

Machine Format

Machines

Machine Format Files on Menu:

```
c:\Inplot\WBVTL.ini
c:\Inplot\Okuma.ini
c:\Inplot\Milling.ini
C:\Inplot\mori-seiki.ini
C:\Inplot\starturn.ini
C:\Inplot\fma3-ii.ini
C:\Inplot\Maho.ini
```

Add...

Remove   New...   ✓ OK

With this dialog box you add or remove machine configurations from the main 'File' menu.

Add. Choose a machine INI file to add to the list.

Remove. Highlight an item on the list and click Remove to take it off the main menu.

New. Enter new name into file dialog box. This will create a new INI file with that name. You will then have to use 'Add' to include that file on the list. This new configuration has all default settings. Alternatively, you could   copy an old machine INI file and give it a new name and add that to the list.