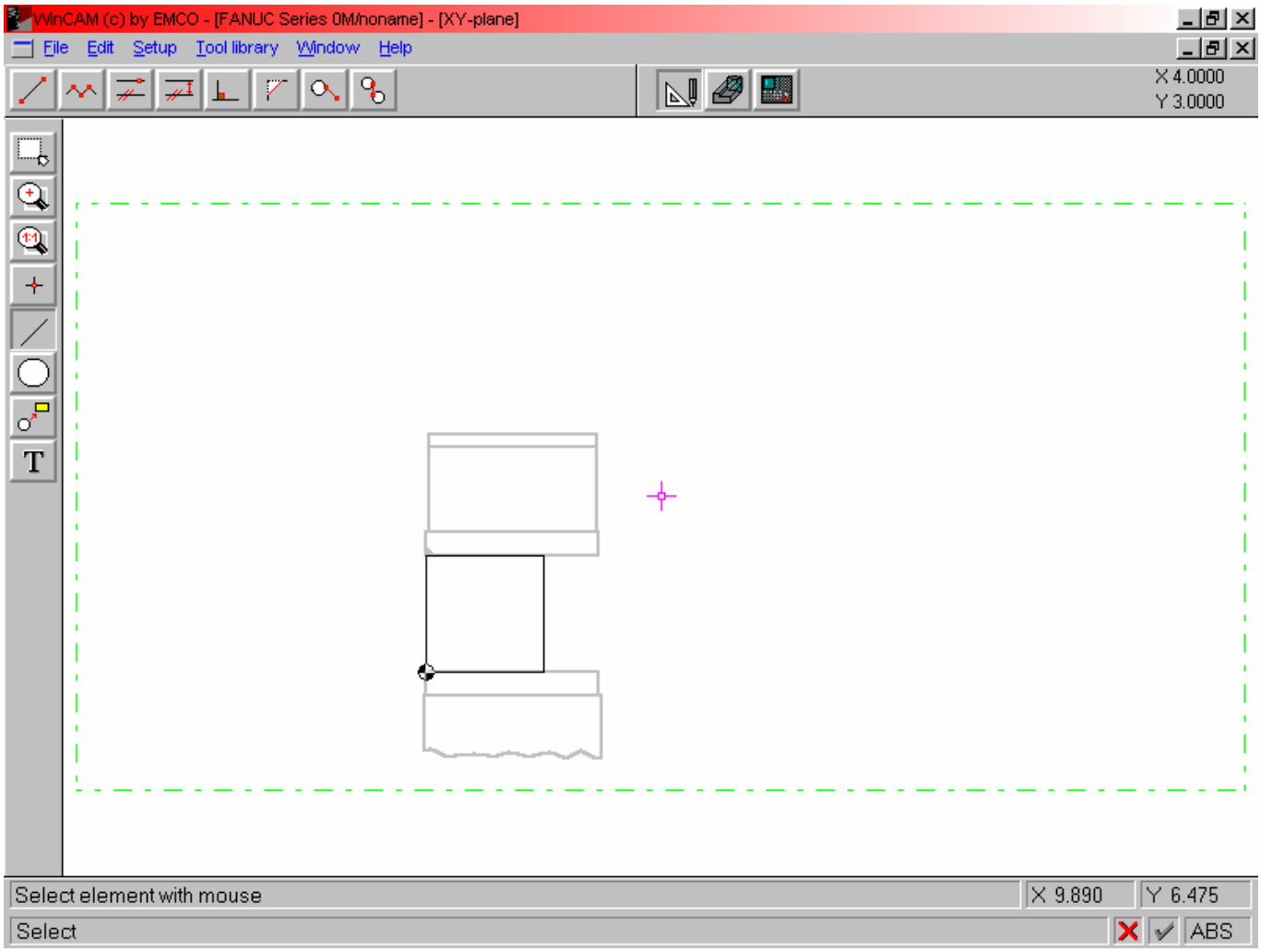
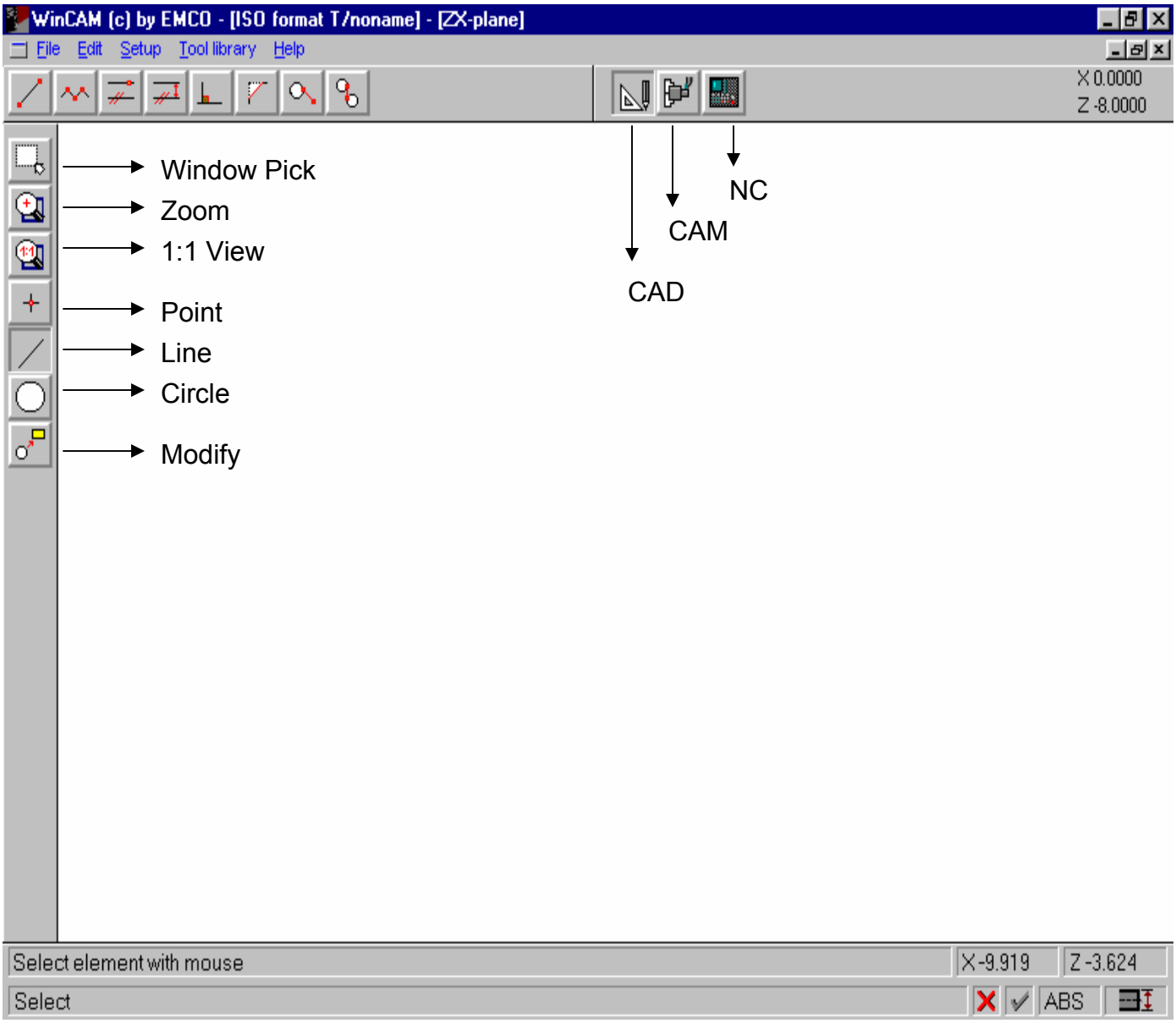
innovative machine tools

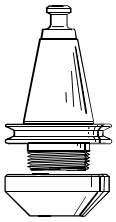
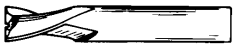


WinCAM Milling
Level 1

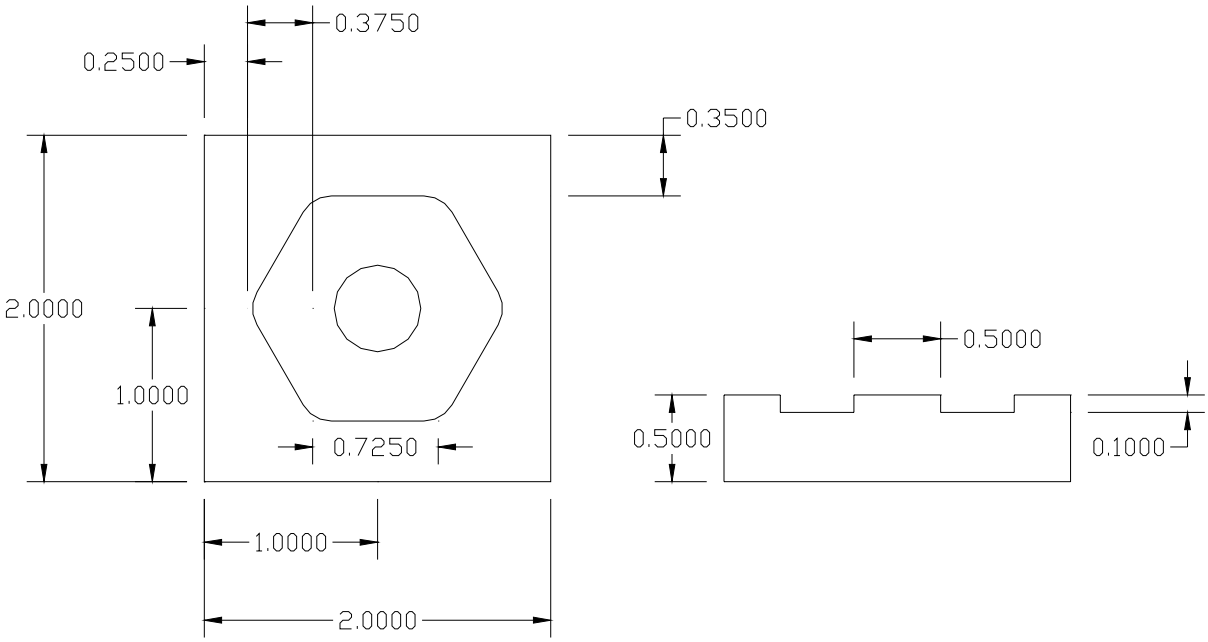
5/8/03 Version 3
Made by EMCO
Authored by Chad Hawk

WinCAM is an icon driven system with three basic parts:
Cad, Cam and Machine. In this picture you can see the



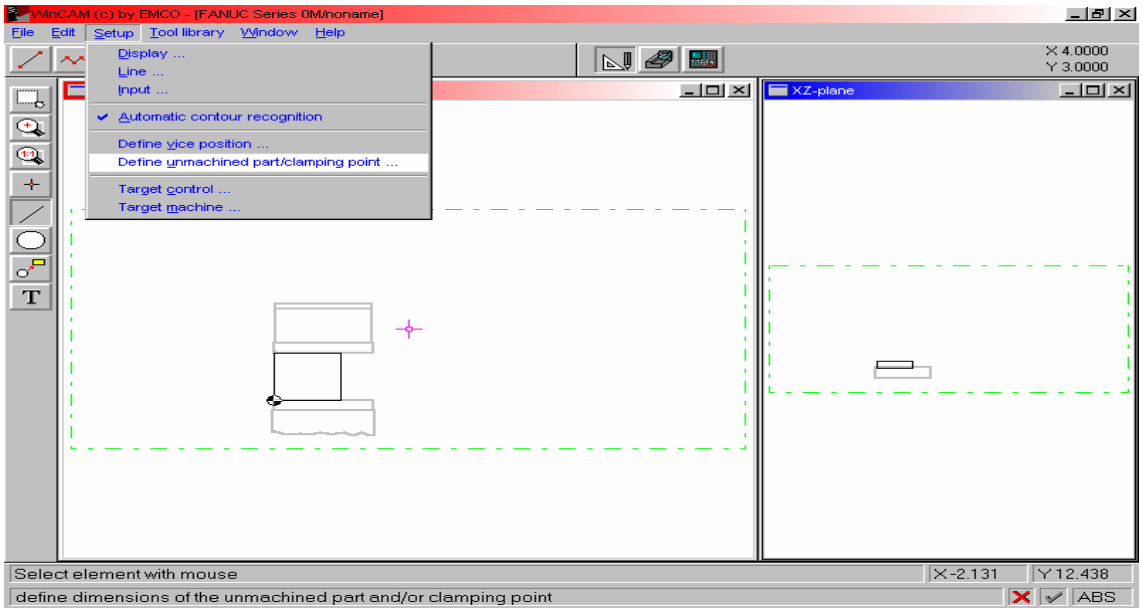
F1Z 010	**Collet holder**	For ESX-25 collets	
225 100	**(9.0-10.0mm)∅ 3/8”**	**ESX 25 COLLETS**	
764 308	Acc. to DIN 327, shape B cutting-ø10 mm / shank-ø10mm	**Slot end mill, HSS**	

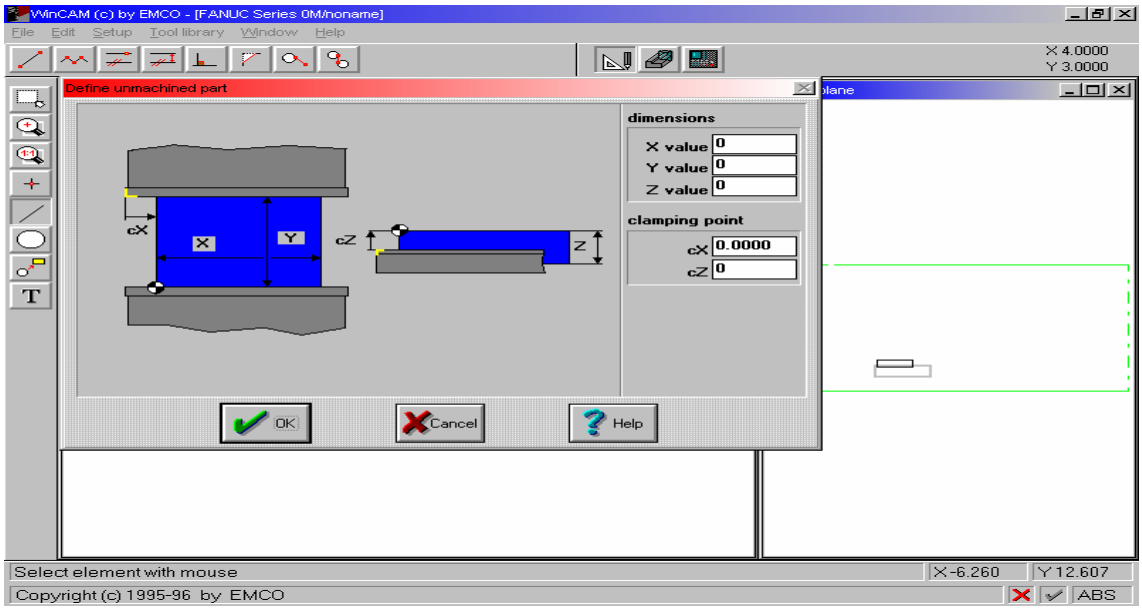
PART SIZE = “2 X 2 X .5” OF 2024–T4 ALUMINUM



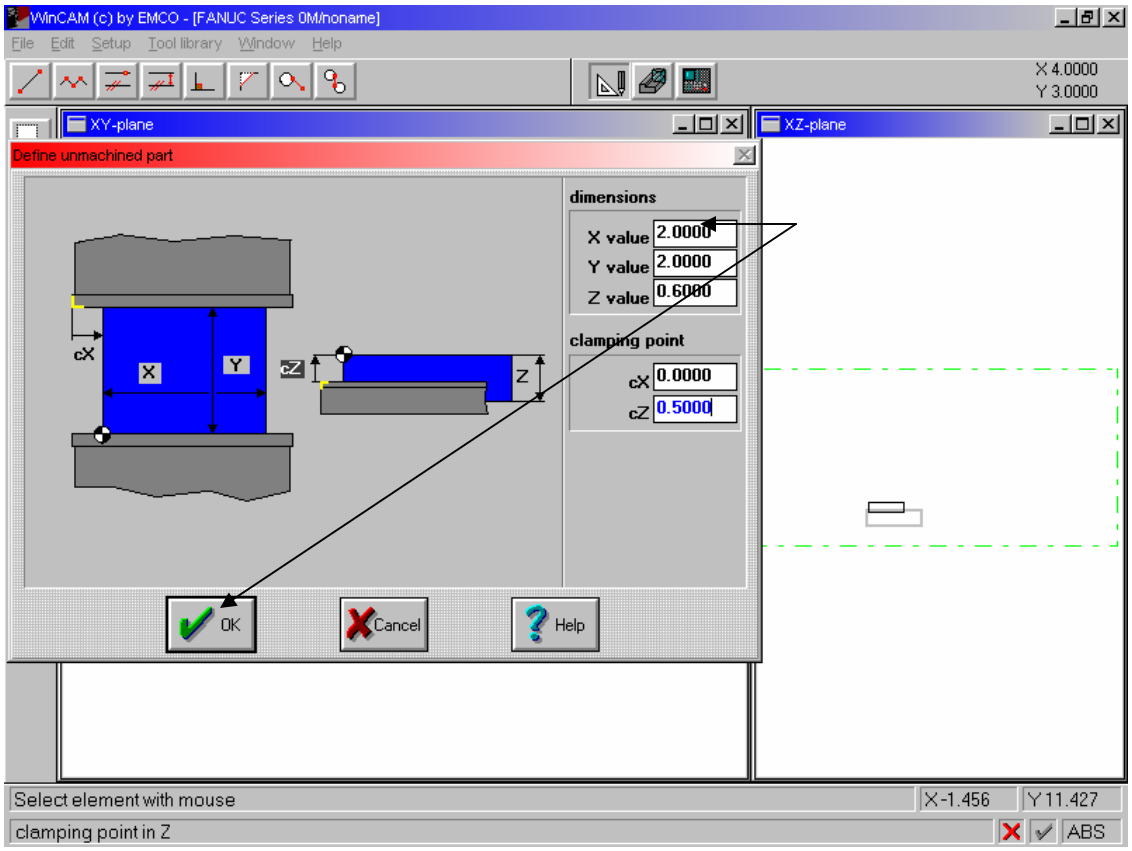
WinCAM Mill Step by Step
CAD Setup

1. **LEFT CLICK ON SETUP (THE TOP BAR OF THE SCREEN)**
2. **CLICK ON DEFINE UNMACHINED PART/CLAMPING POINT**



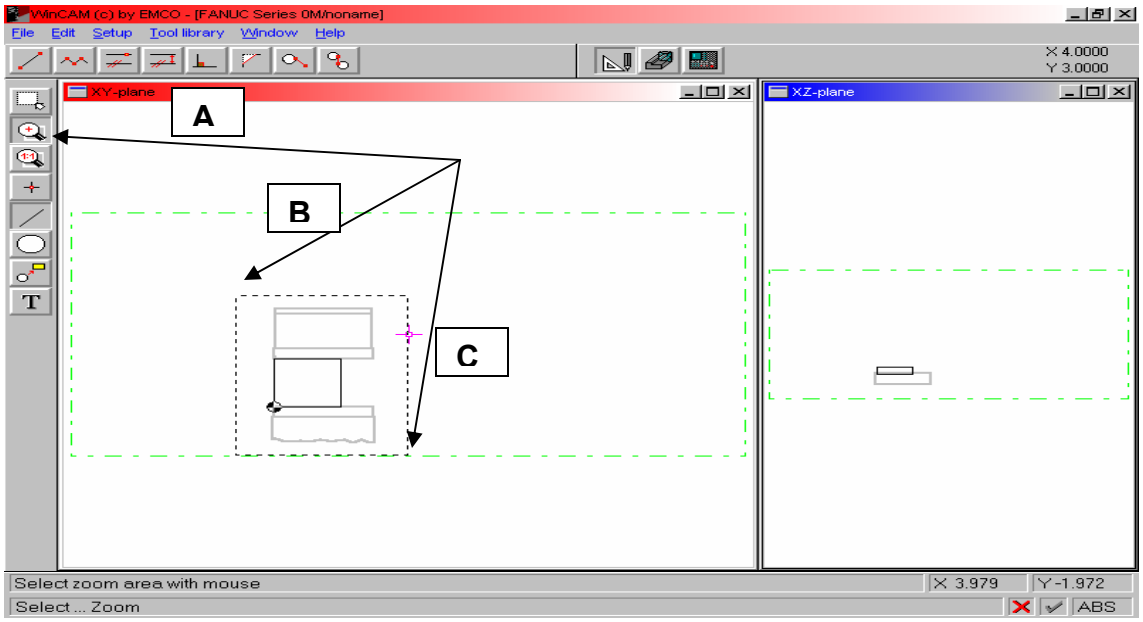


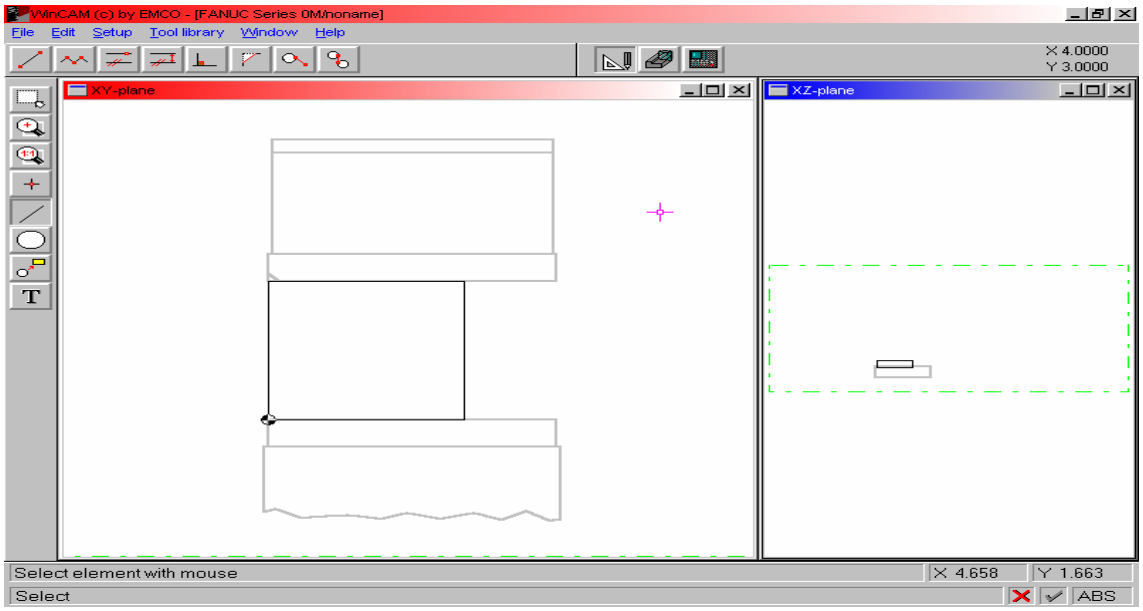
3. **UNDER DIMINSIONS HIGHLIGHT** X value 2.0000
4. **TYPE 2. (LENGTH OF THE PART); THEN PRESS TAB**
5. **TYPE 2. IN THE Y VALUE BOX (WIDTH) THEN PRESS TAB**
6. **TYPE .5 IN THE Z VALUE BOX (HEIGHT) THEN PRESS TAB**
7. **TYPE 0. IN THE cX VALUE BOX (AMOUNT OF STOCK STICKING IN OR OUT OF THE VISE) THEN PRESS TAB**
8. **TYPE .4 IN THE cZ VALUE (STOCK ABOVE THE VISE)**
9. **CLICK OK** OK



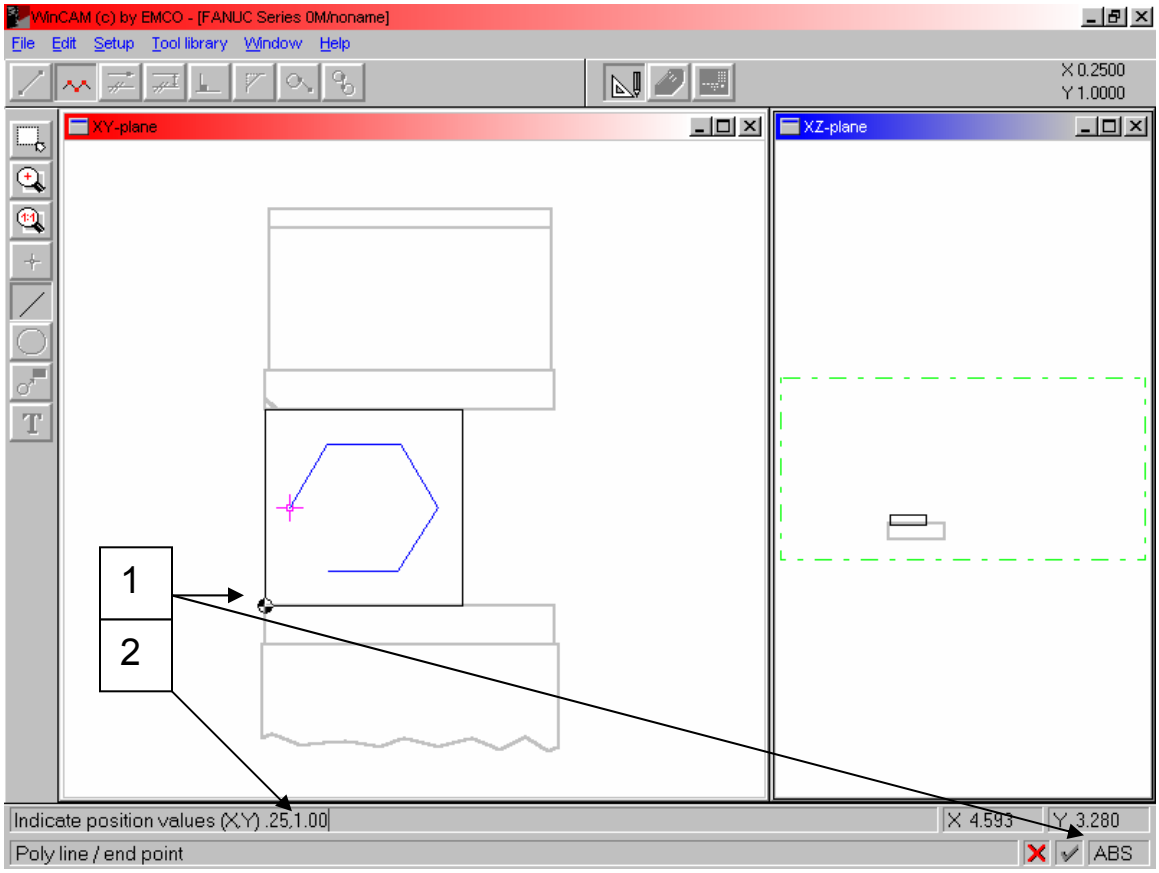
NOTE: PLACE THE MOUSE POINTER OVER ANY ICON AND WINCAM AUTOMATICALLY IDENTIFY THE ICON AT THE LOWER LEFT OF THE SCREEN.

10. CLICK ON THE ZOOM DRAWING ELEMENT ICON  (A)
11. PLACE THE MOUSE POINTER OR + SIMBOL TO THE UPPER LEFT SIDE OF THE VISE (B)
12. CLICK & HOLD THE LEFT MOUSE BUTTON & DRAG TO THE BOTTOM RIGHT SIDE OF THE VISE (C)
13. LET GO OF MOUSE; YOUR VEIW WILL ENLARGE





14. CLICK ON THE POLYLINE ICON  (MULTIPLE LINE)
15. TYPE .625, .350 FOR THE START POINT / THEN PRESS ENTER ON THE PC KEYBOARD
16. TYPE 1.35, .350 FOR THE NEXT POINT / PRESS ENTER
17. TYPE 1.75, 1.00 FOR THE NEXT POINT / PRESS ENTER
18. TYPE 1.375, 1.65 FOR THE NEXT POINT / PRESS ENTER
19. TYPE .625, 1.65 FOR THE NEXT POINT / PRESS ENTER
20. TYPE .25, 1.00 FOR THE ENDING POINT / PRESS ENTER

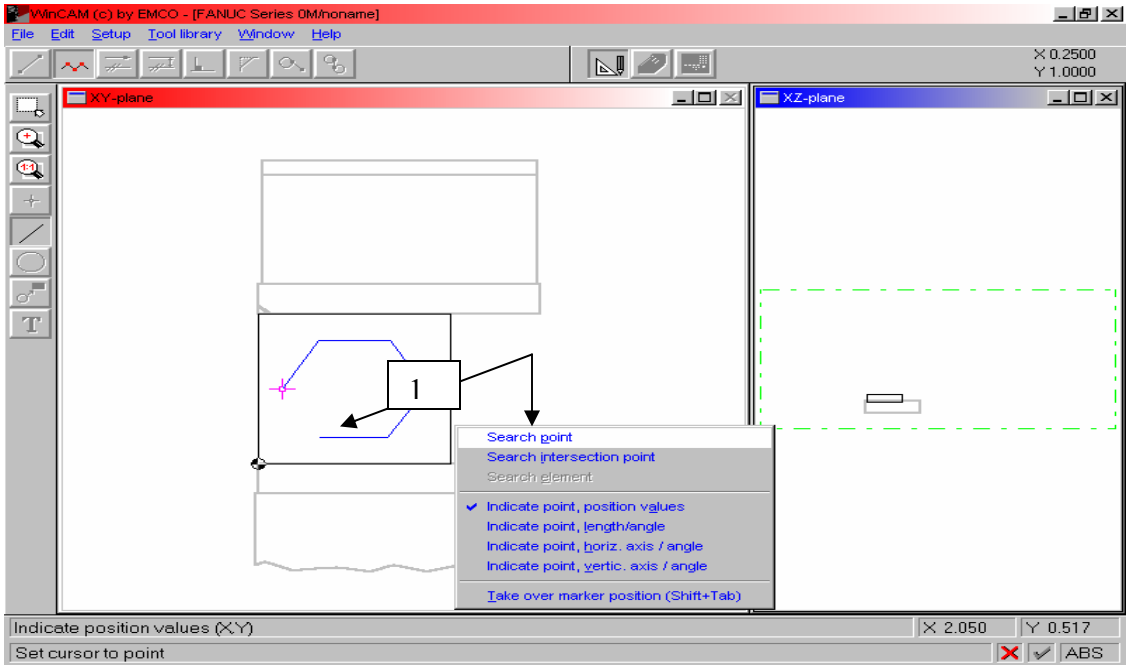


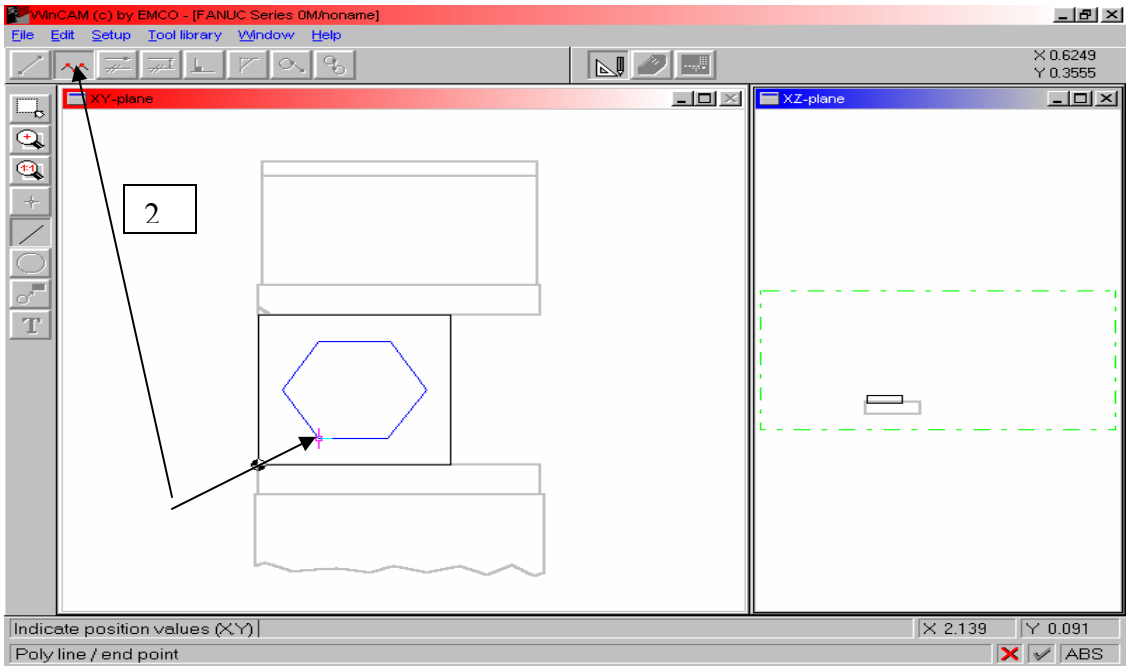
NOTES:

1: CORDINATES ARE ABSOLUTE FROM REFERENCE POINT

2: ALL VALUES TYPED IN ARE LOCATED AT LOWER LEFT OF THE SCREEN

21. CLICK ON THE RIGHT MOUSE BUTTON
22. HIGHLIGHT SEARCH POINT THEN LEFT CLICK
23. CLICK ON THE OTHER SIDE OF THE ENDING LINE SEGMENT (1)
24. CLICK ON POLYLINE ICON  THIS DESELECTS POLYLINE (2)



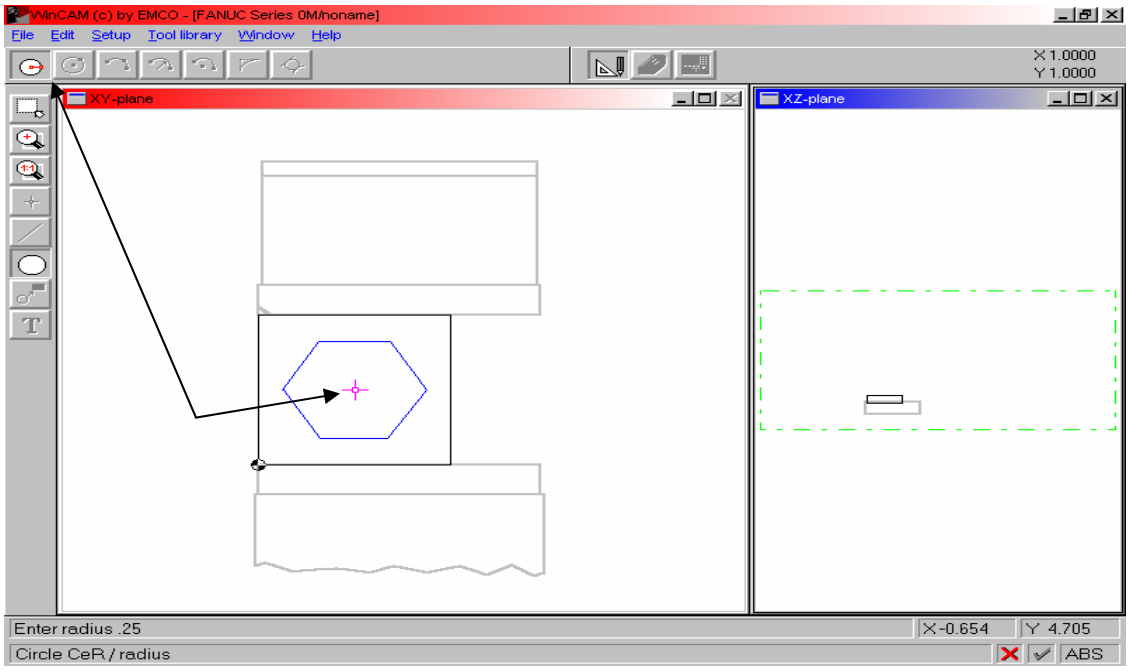


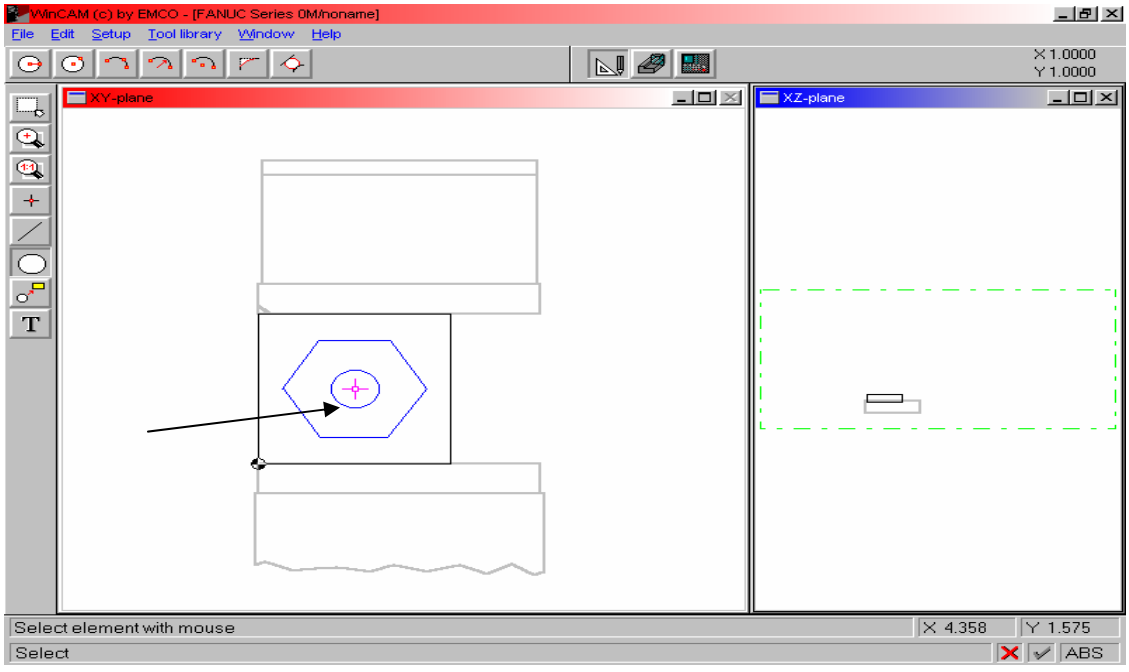
25. CLICK ON CIRCLE ICON 

26. CLICK ON CIRCLE WITH CENTER AND RADIUS ICON 

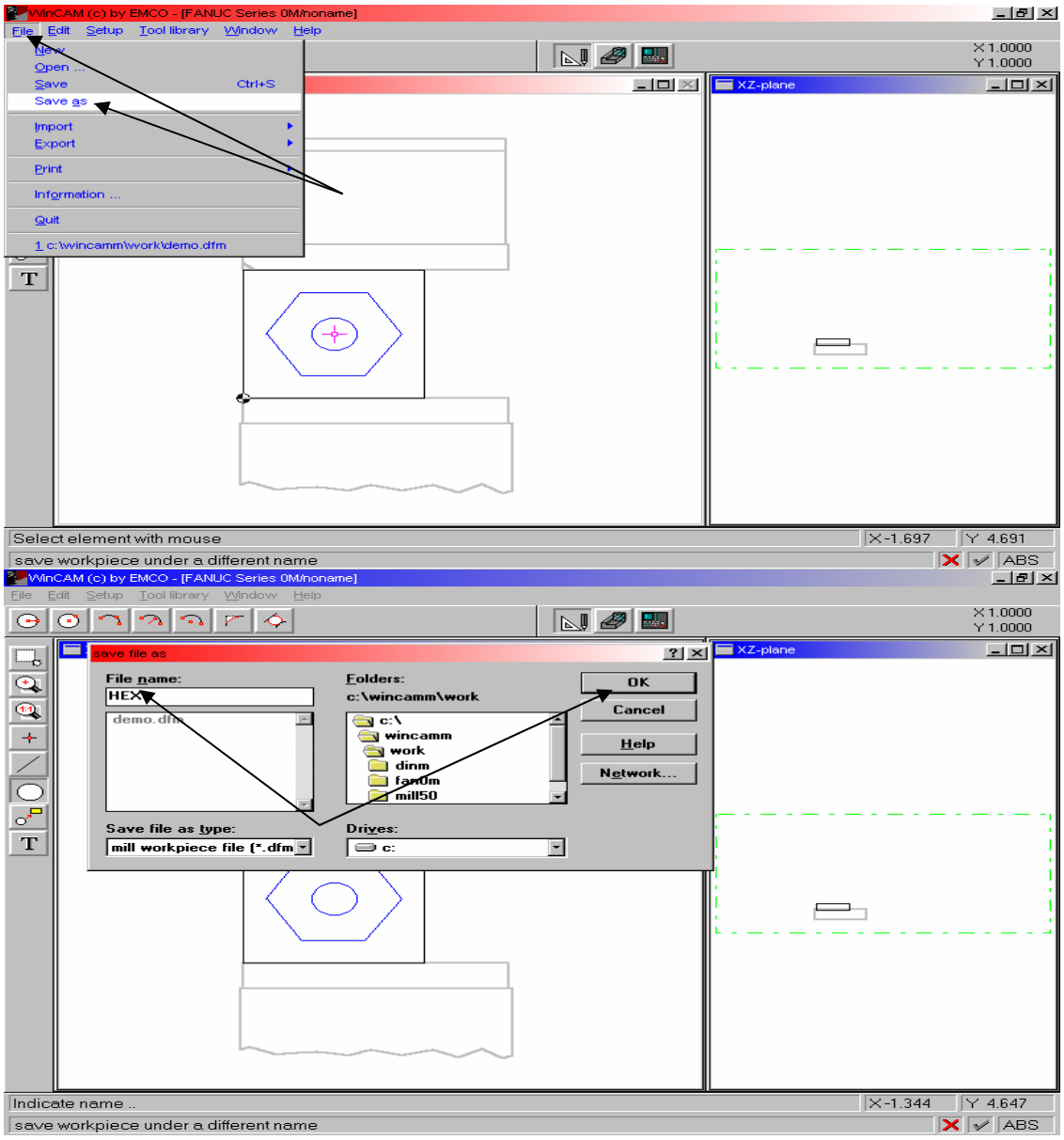
27. TYPE 1.0,1.0 LOCATES CENTER OF THE PART / THEN PRESS ENTER

28. TYPE .25 FOR THE RADIUS OF THE CIRCLE / THEN PRESS ENTER





1. **CLICK ON FILE (TOP LEFT OF THE SCREEN)**
2. **CLICK ON SAVE AS**
3. **TYPE HEX**
4. **CLICK OK**



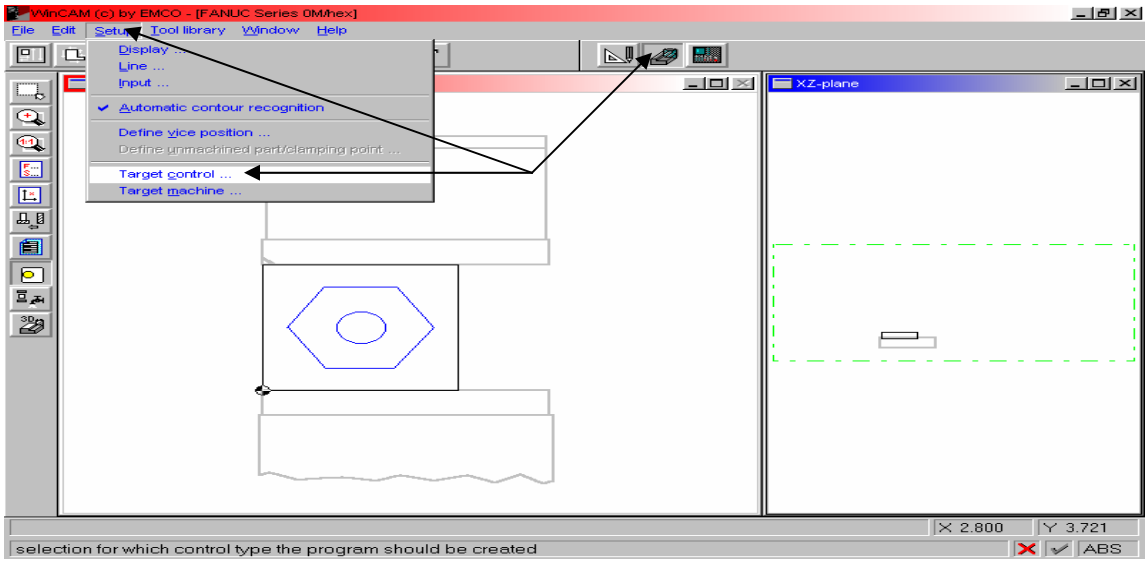
You have just completed the CAD portion of the Step by Step guide, go to the next page for CAM

WinCAM Mill Step by Step
CAM Setup

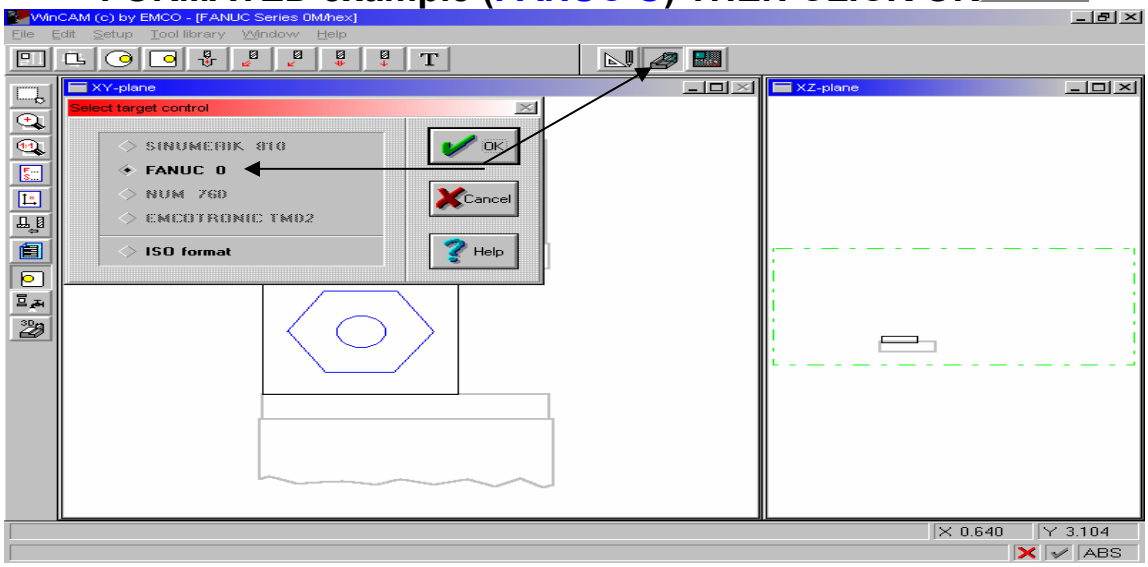
1. **CLICK ON CAM ICON (UPPER MIDDLE OF SCREEN) THIS SWICTES MODES TO COMPUTER AIDED MACHINING**

Note: Only use steps (2, 3 & 4) if you purchased the option(s) for Siemens, Fanuc, Num 760 or Emcotronic TM02

2. **CLICK ON SETUP (TOP LEFT OF THE SCREEN)**
3. **CLICK ON TARGET CONTROL**



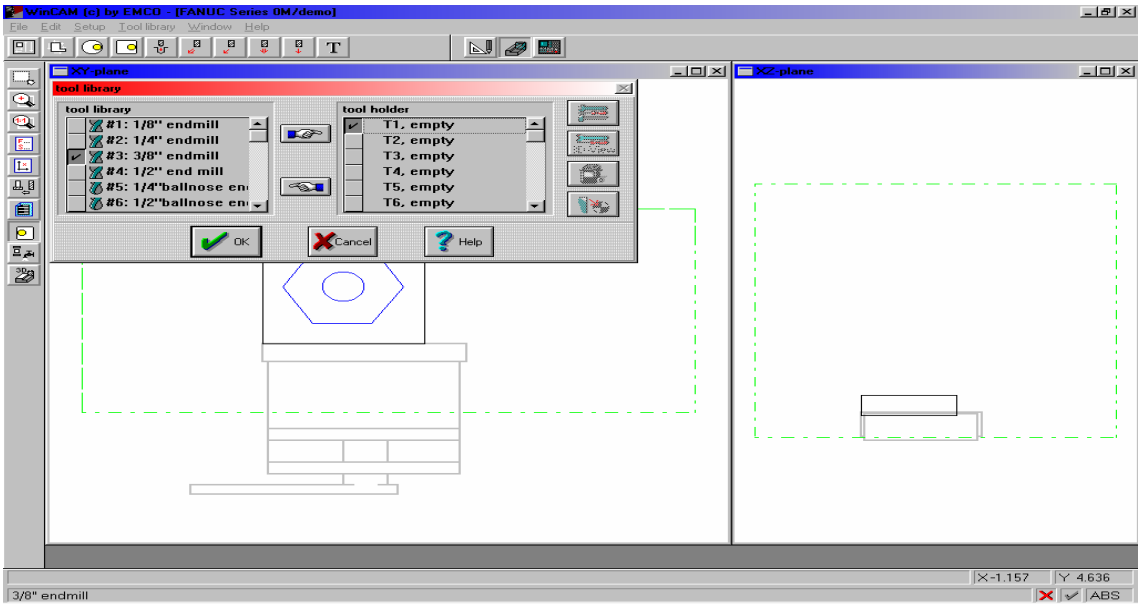
4. **CLICK ON THE POST FOR THE PROGRAM TO BE FORMATED example (FANUC O) THEN CLICK OK** OK



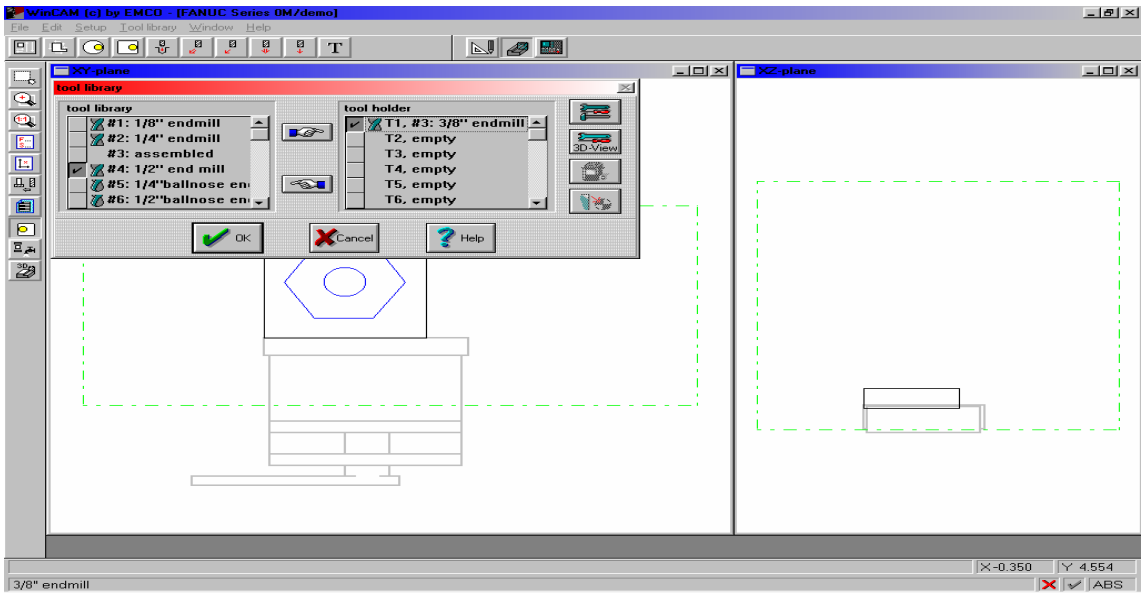
5. CLICK ON TOOL LIBARAY (TOP LEFT OF THE SCREEN)
6. CLICK THE GRAY BOX 

(UNDER TOOL LIBRARY)
7. CLICK THE GRAY BOX 

(UNDER TOOL HOLDER)



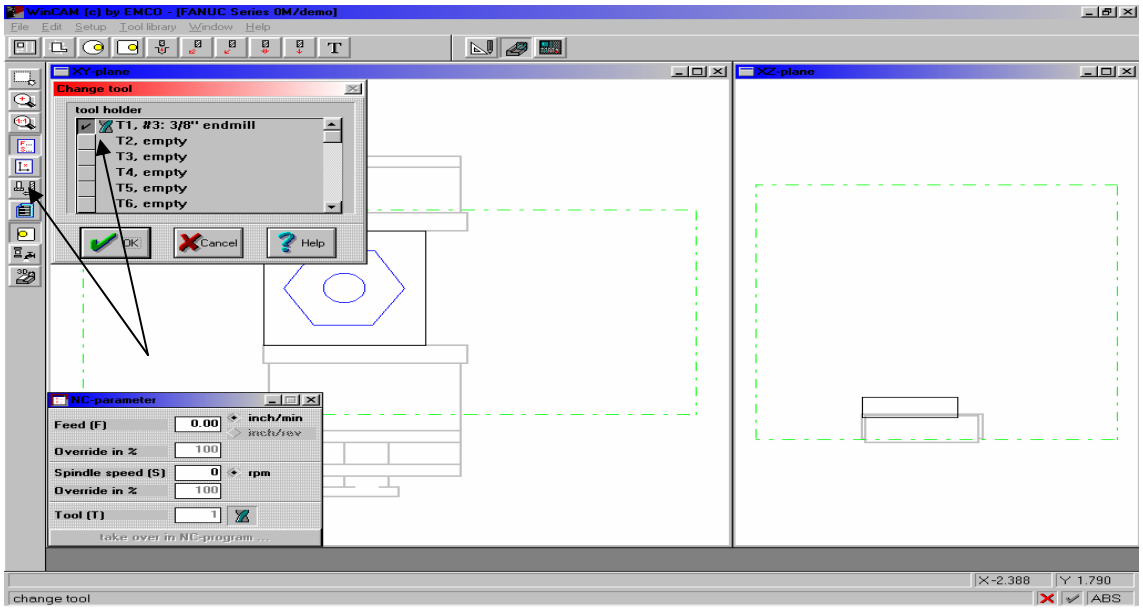
8. CLICK ON THE TRANFER ICON  (THIS PLACES TOOL IN TOOL HOLDER)
9. CLICK OK 



10. CLICK ON THE TOOL CHANGE ICON 

11. CLICK ON THE GRAY BOX 

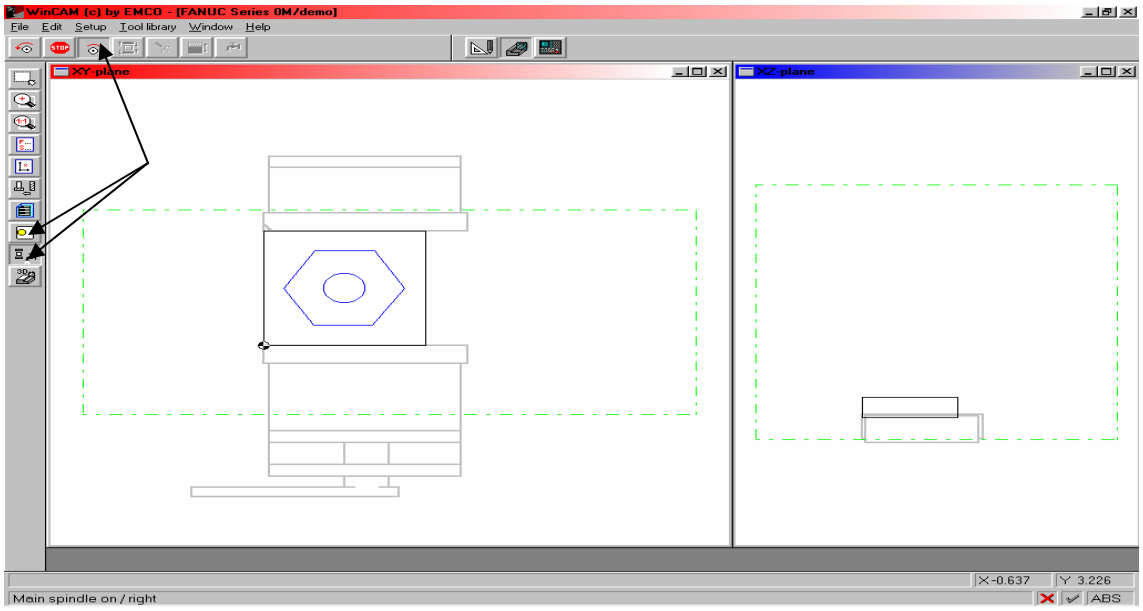
/ THEN CLICK OK 



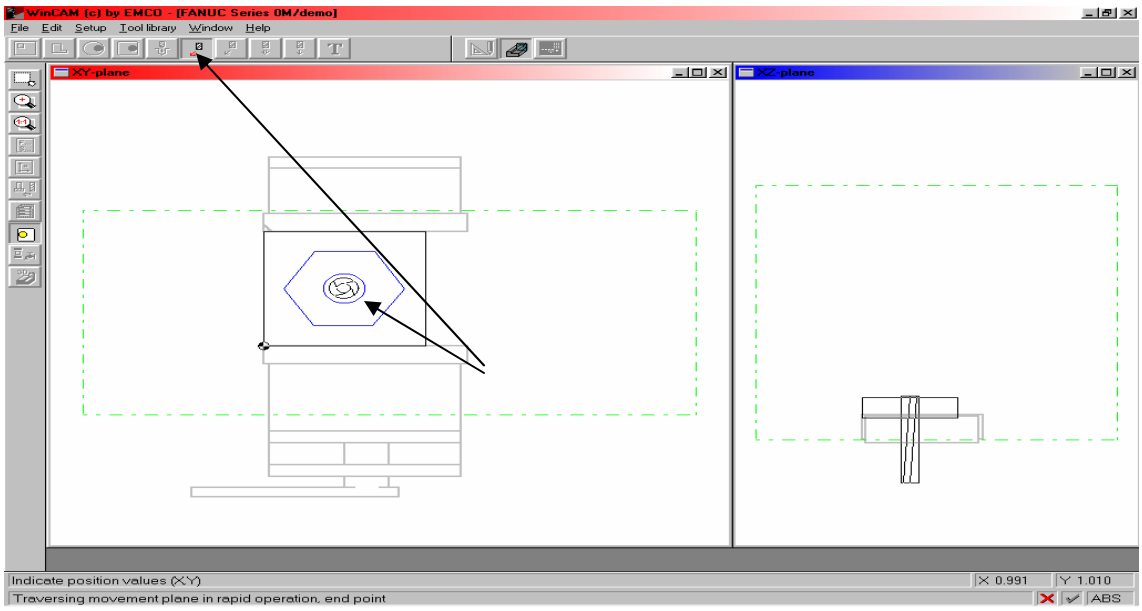
12. CLICK ON THE PERIPHERY ICON 

13. CLICK ON MAIN SPINDLE ON RIGHT  (M03)

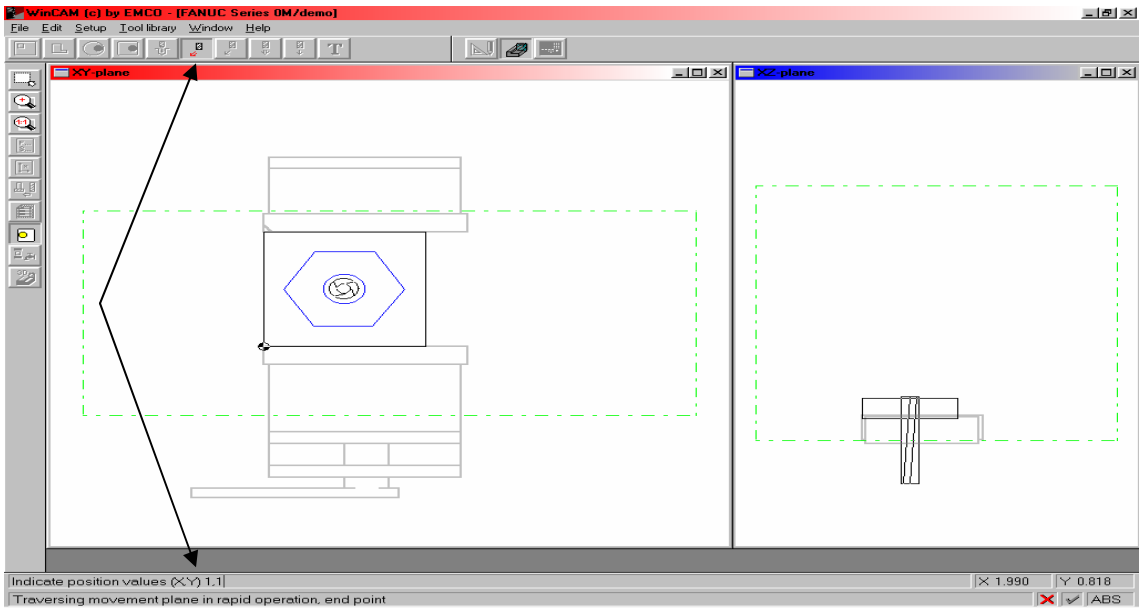
14. CLICK ON MACHINE ICON 



15. CLICK ON MOVEMENT IN RAPID MOTION IN PLANE ICON  (X, Y)
16. PLACE THE MOUSE IN THE CENTER OF THE PART / LEFT CLICK OR YOU CAN TYPE IN 1,1 THEN ENTER
17. THE TOOL WILL LOOK AS IF IT IS THROUGH THE PART

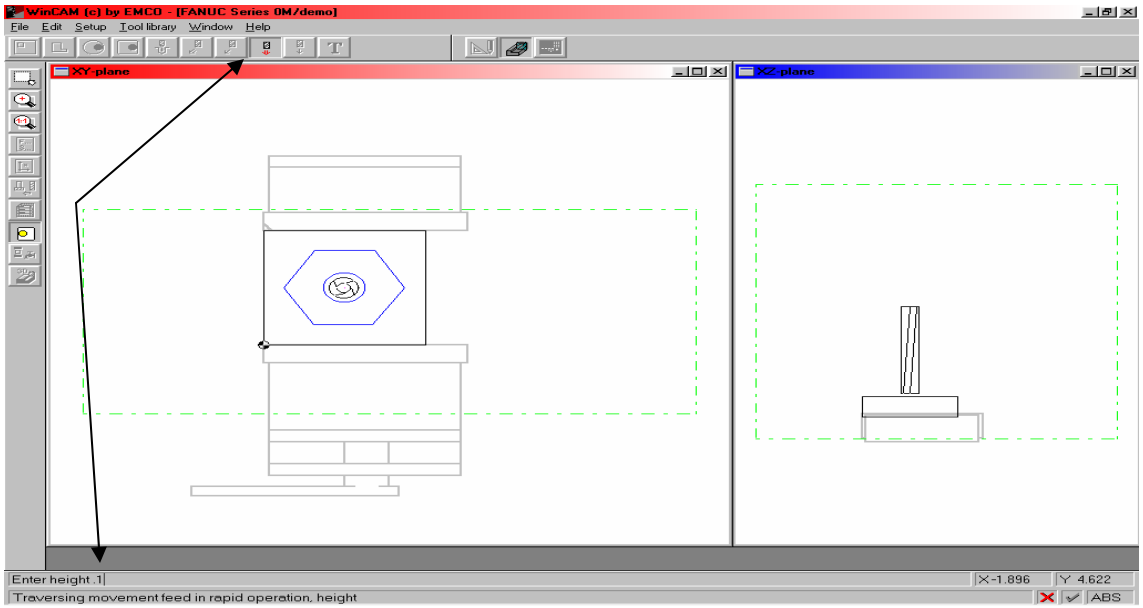


OR



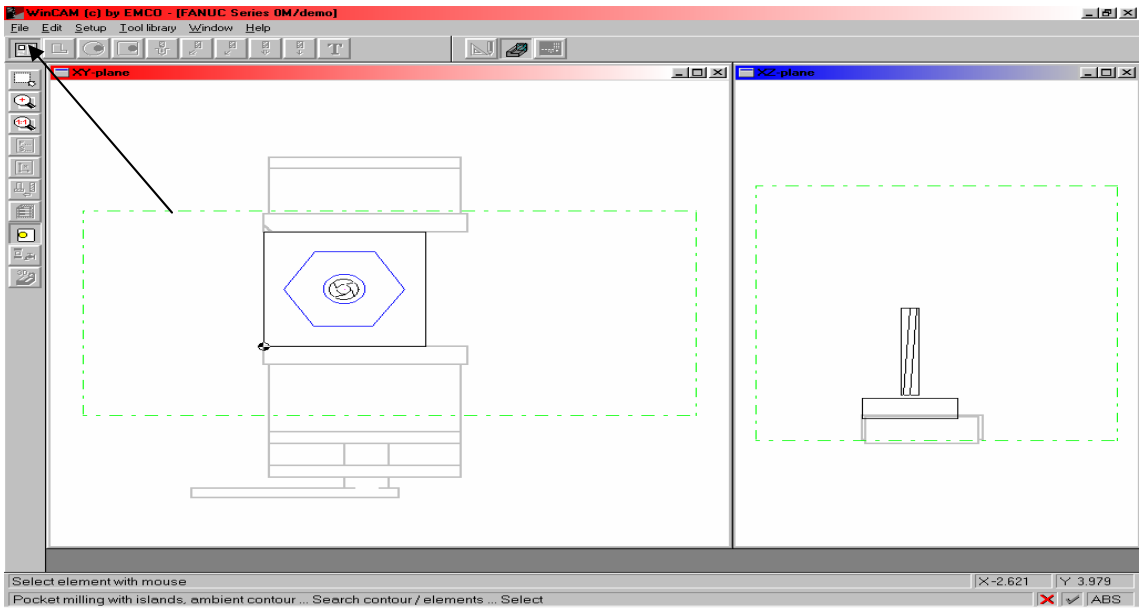
18. CLICK ON MOVEMENT IN RAPID MOTION IN FEED DIRECTION ICON  (G0 in Z)

19. TYPE IN .100 FOR THE HIEGHT (ABOVE THE PART)



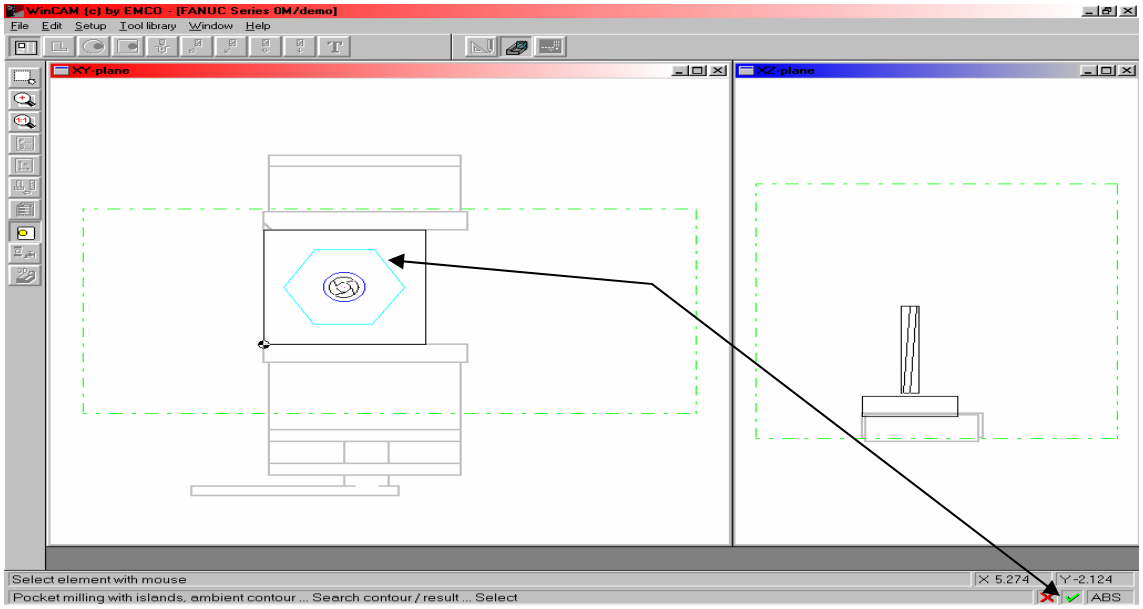
20. PRESS ENTER ON PC KEYBOARD

21. CLICK ON POCKET MILLING WITH ISLAND ICON 



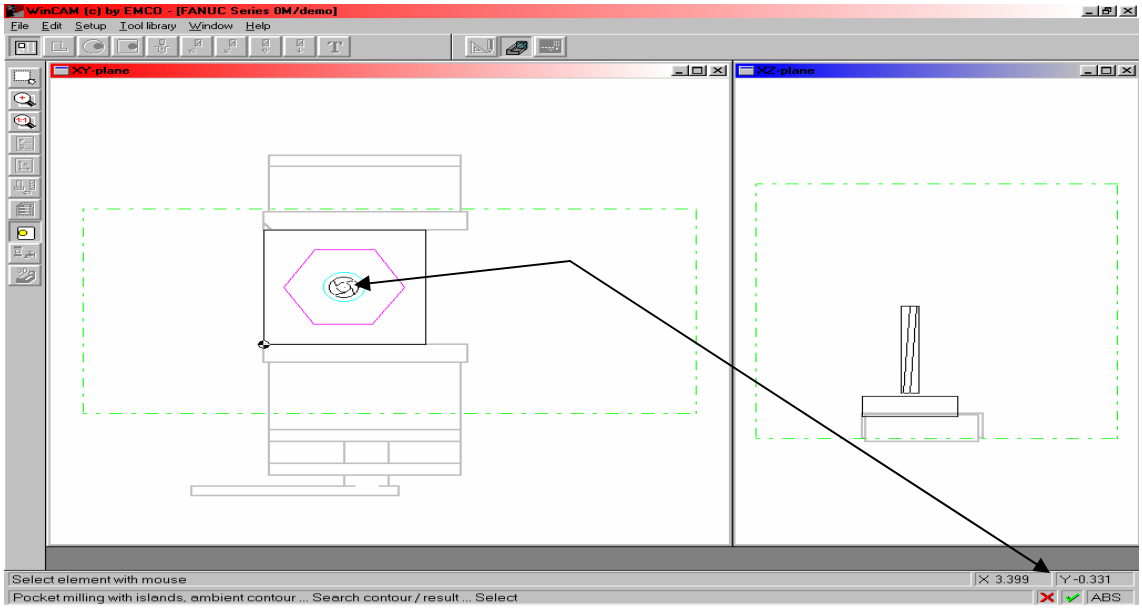
22. CLICK ON THE HEX

23. CLICK THE GREEN CHECK MARK ✓ (BOTTOM RIGHT)

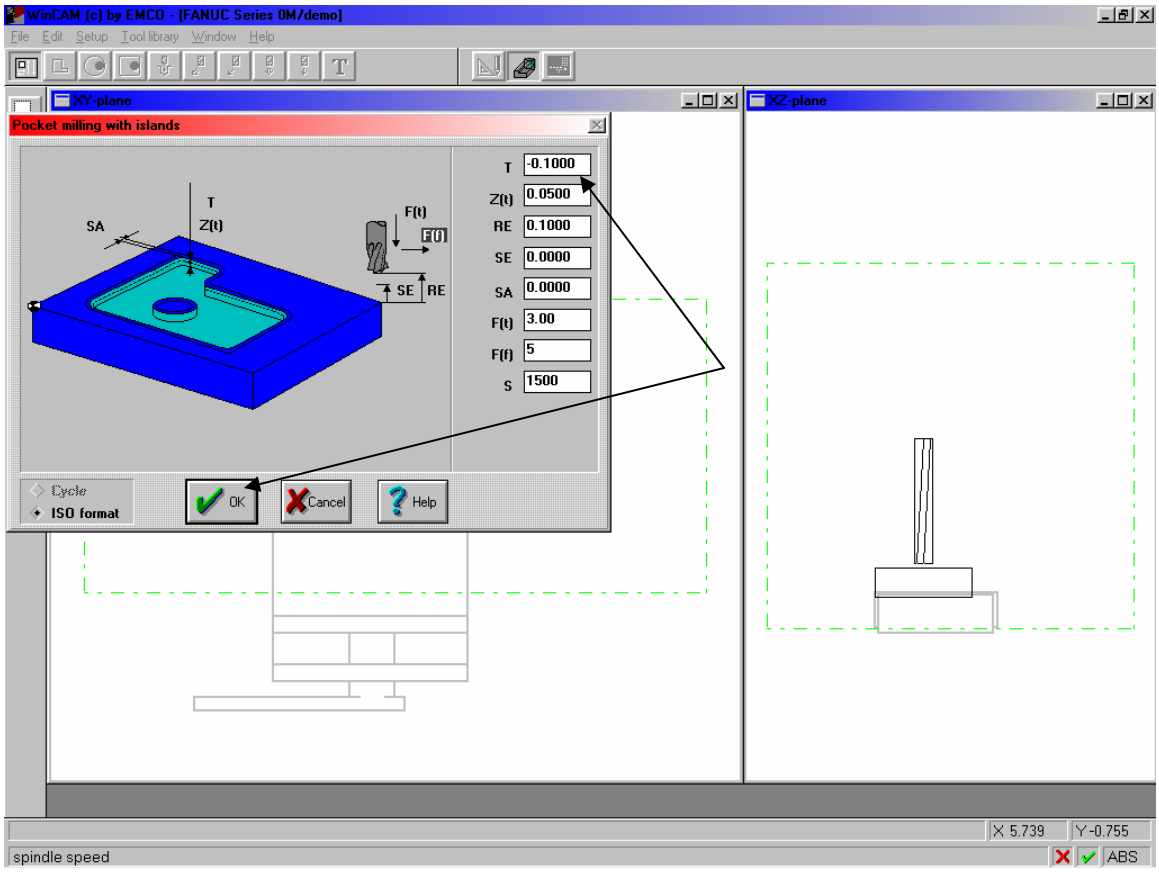


24. CLICK ON THE CIRCLE (MIDDLE OF THE PART)

25. CLICK THE GREEN CHECK MARK ✓ 2 TIMES (THIS IS COMFERMATION OF THE SELECTED ITEM)

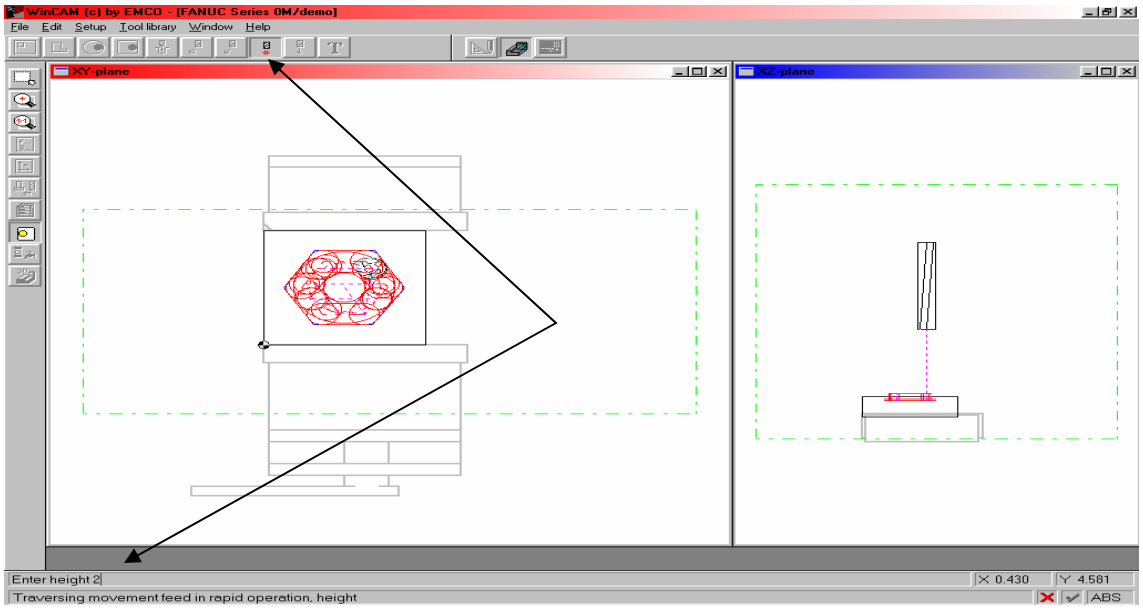


26. DOUBLE CLICK ON THE T = DEPTH (WHITE AREA)
27. TYPE IN -.1 / THEN PRESS TAB
28. TYPE IN .05 IN Z(t) FOR ADVANCE DEPTH / PRESS TAB
29. TYPE IN .1 IN RE FOR RETURN PLANE / PRESS TAB
30. TYPE IN 0 IN SE FOR START PLANE / PRESS TAB
31. TYPE IN 0 IN SA FOR FINISH OFFSET / PRESS TAB
32. TYPE IN 3 IN F(t) FOR Z FEED (FEED PER MINUTE) / PRESS TAB
33. TYPE IN 5 IN F(f) FOR X,Y FEED (FEED PER MINUTE) / PRESS TAB
34. TYPE IN 1500 IN S FOR SPINDLE SPEED (DIRECT RPM)
35. CLICK ON OK



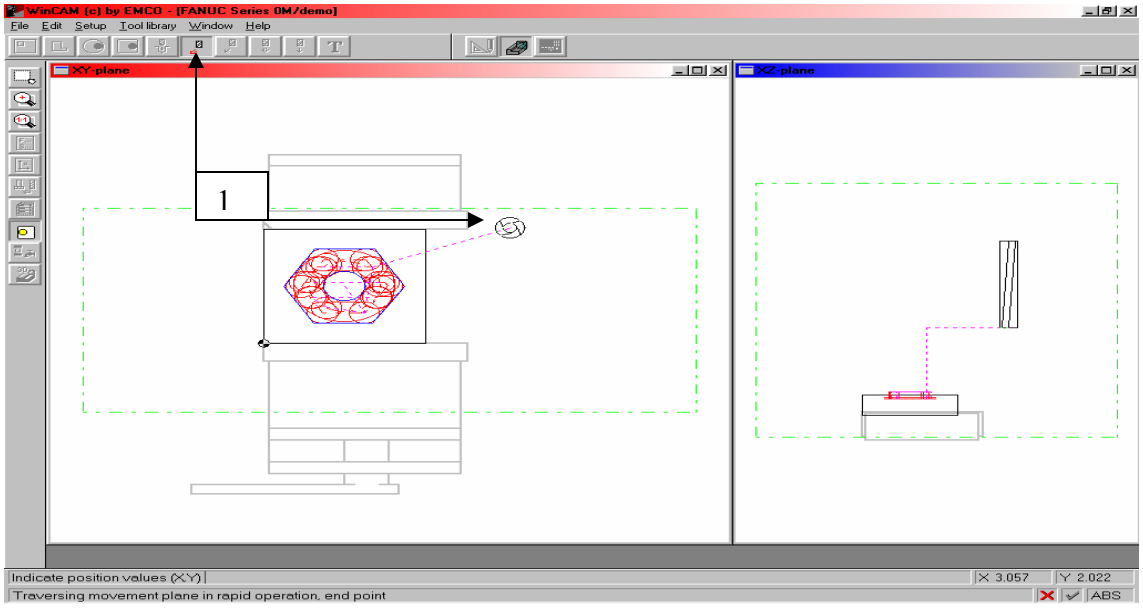
36. CLICK ON MOVEMENT IN RAPID MOTION IN FEED DIRECTION ICON  (G0 in Z)

37. TYPE 2. / PRESS ENTER

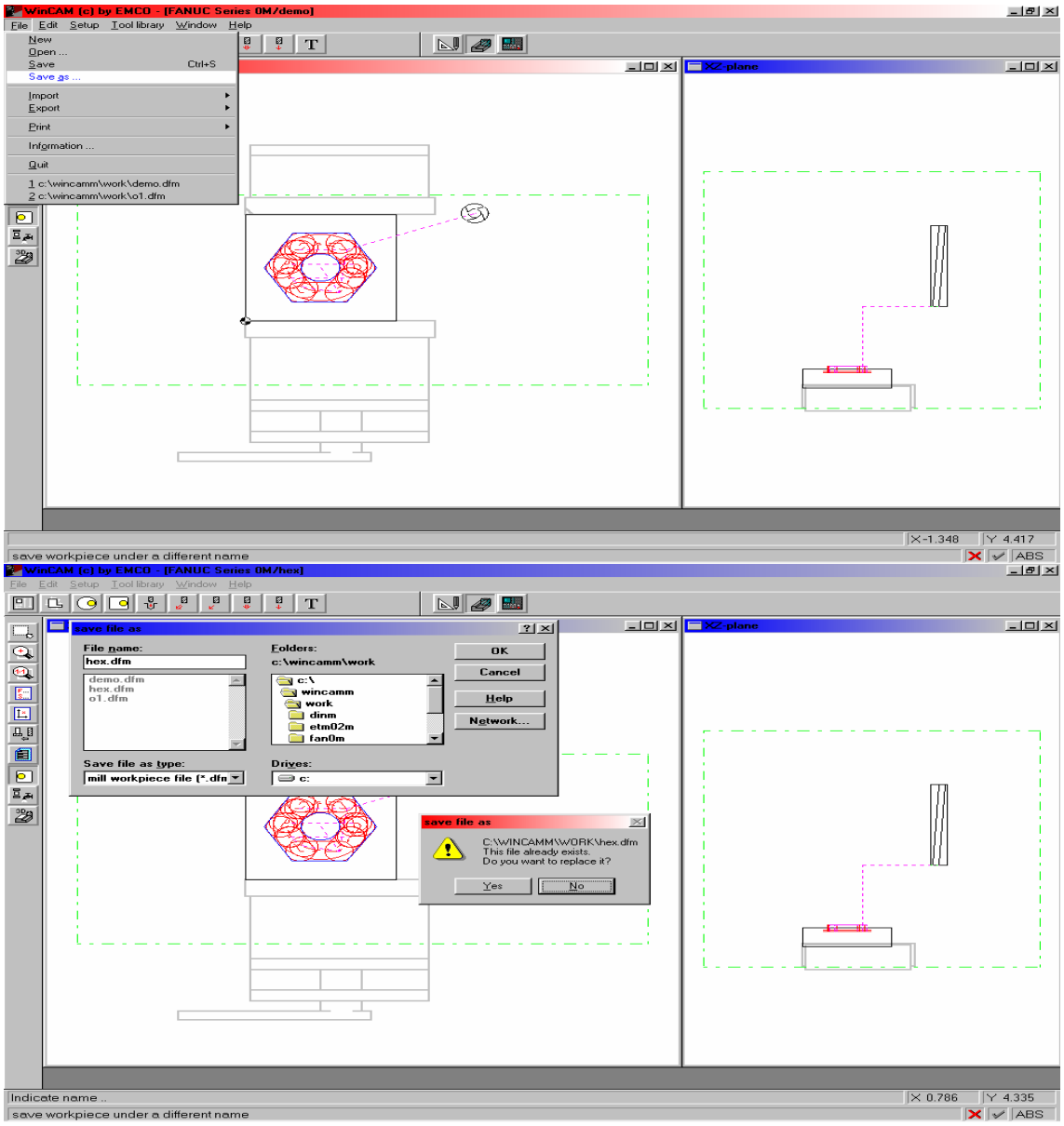


38. CLICK ON MOVEMENT IN RAPID MOTION IN PLANE ICON  (G0 in X, Y)

39. MOVE THE MOUSE TO THE UPPER RIGHT CORNER OF THE VISE PART (1) / THEN LEFT CLICK



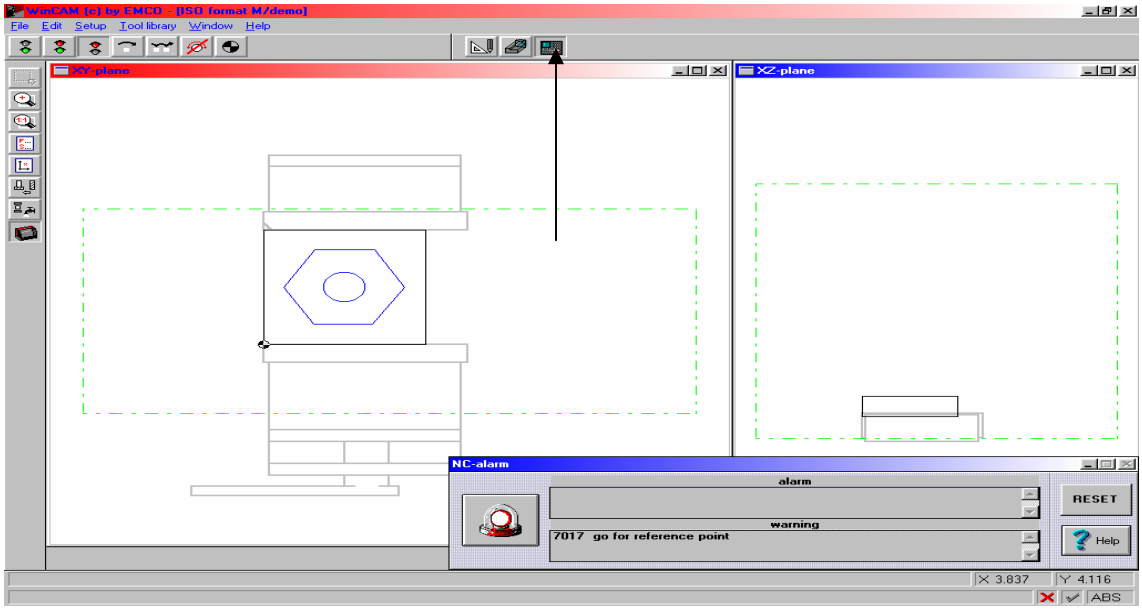
1. **CLICK ON FILE (TOP LEFT OF THE SCREEN)**
2. **CLICK ON SAVE AS**
3. **CLICK ON HEX.DFM**
4. **CLICK YES TO FILE ALREADY EXISTS**
5. **CLICK OK**



You have just completed the CAM portion of the Step-by-Step guide, go to the next page for Machine

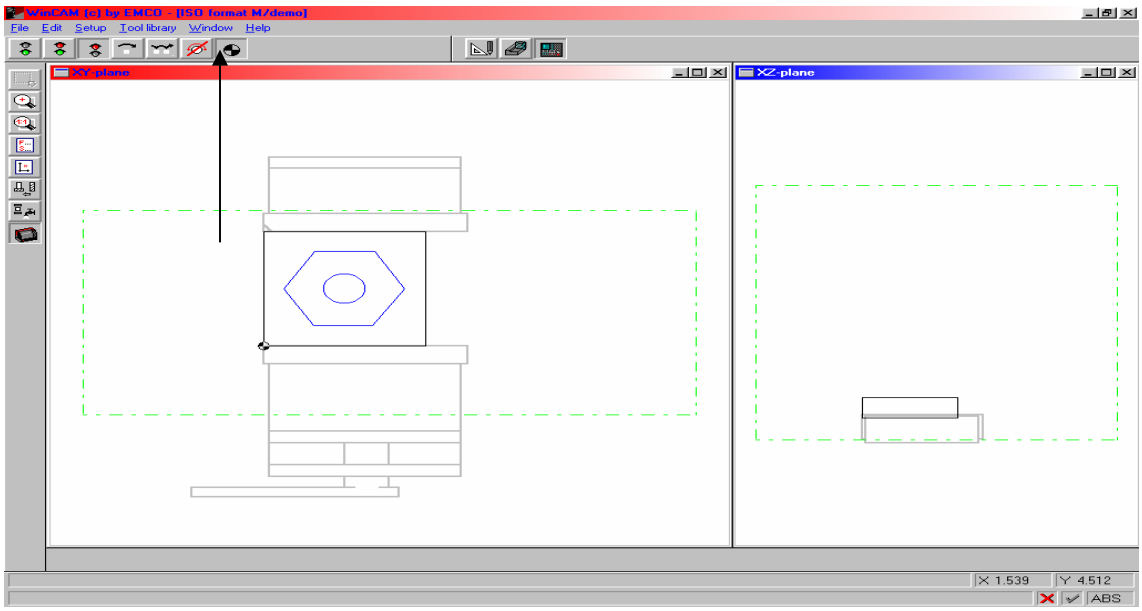
WinCAM Mill Step by Step
MACHINE Setup

1. **CLICK ON MACHINE ICON**  **(NC)**

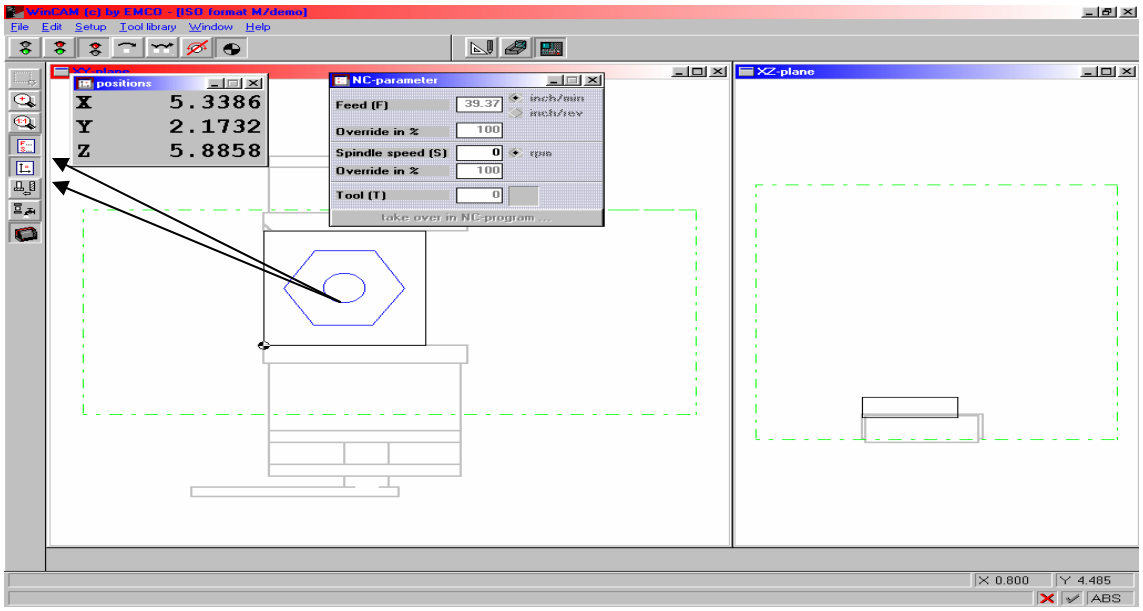


Note: Make sure Door is closed

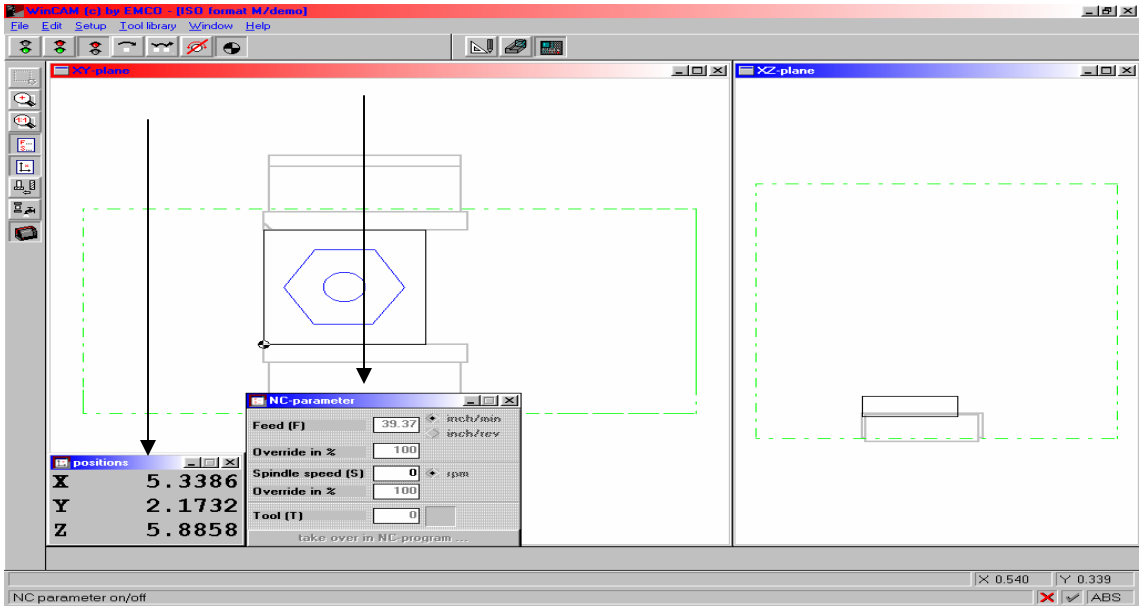
2. **CLICK ON REFERENCE ICON** 



3) CLICK ON NC PARAMETERS ON/OFF  & POSITION DISPLAY ON/OFF 



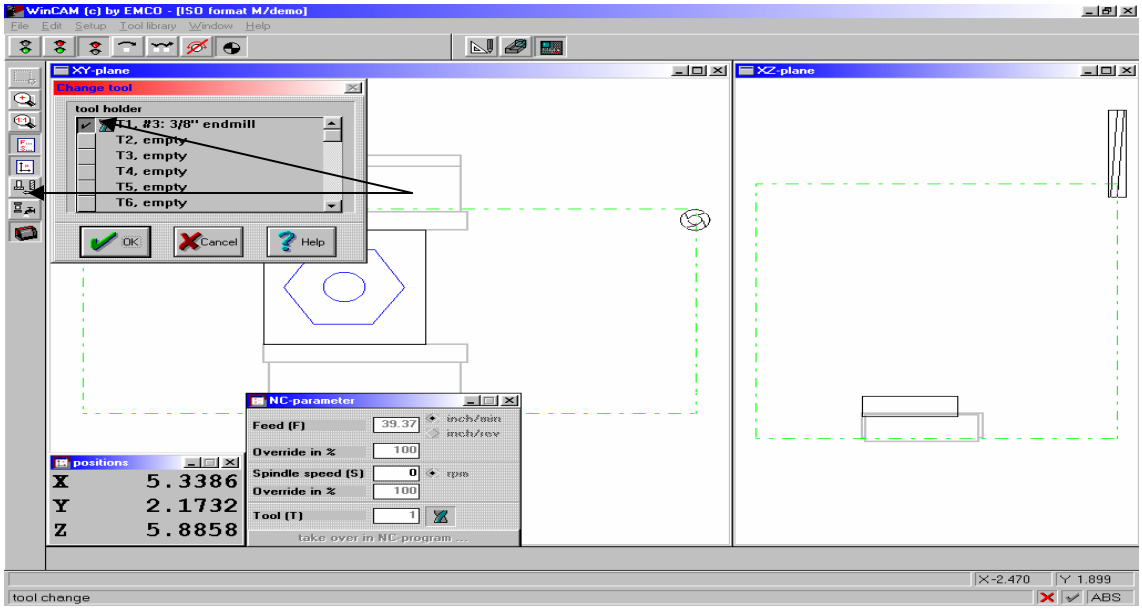
4) MOVE BOTH SCREENS TO A VEIWABLE POSITION BY CLICKING IN THE GRAY BAR AND DRAGGING THE WINDOW TO A NEW POSITION



5) CLICK ON TOOL CHANGE ICON 

6) CLICK 

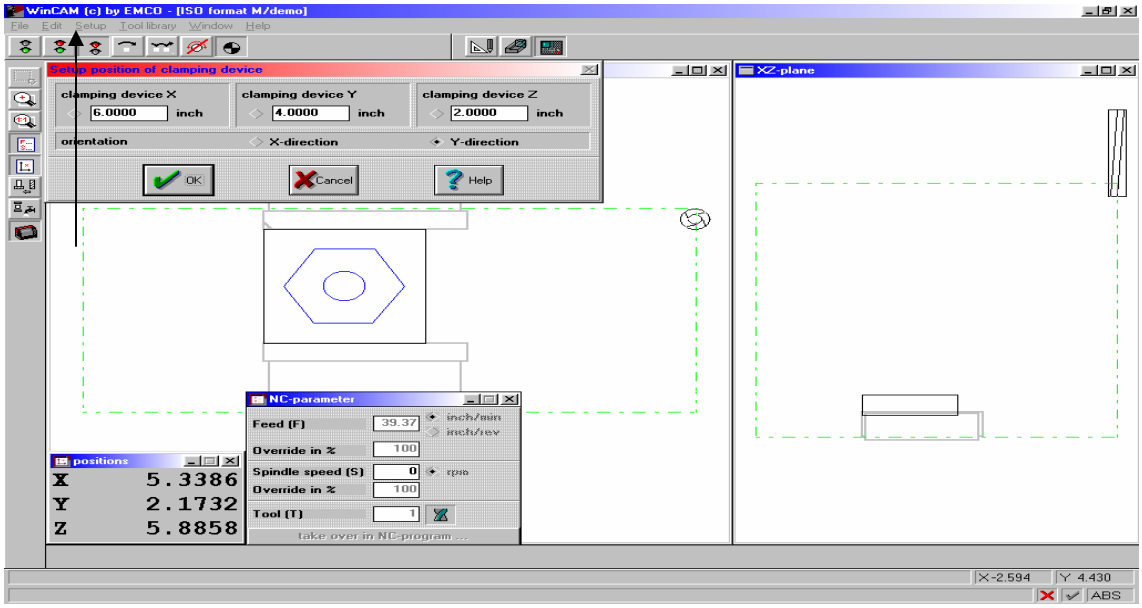
THEN CLICK O.K.



7) MOVE THE Z AXIS UP USING 8 ON # KEYS (Put tool in)

8) CLICK ON SETUP

9) CLICK ON DEFINE VISE POSITION



HINT 1

THE NUMBER KEYS ON THE NUMERIC KEYPAD WITH ARROWS MOVES THE AXIS IN THE X, Y OR Z PLANE

KEY (1) MOVES THE AXIS FORWARD (-Y)

KEY (2) MOVES THE SPINDLE AXIS DOWN (-Z)

KEY (4) MOVES THE AXIS LEFT (-X)

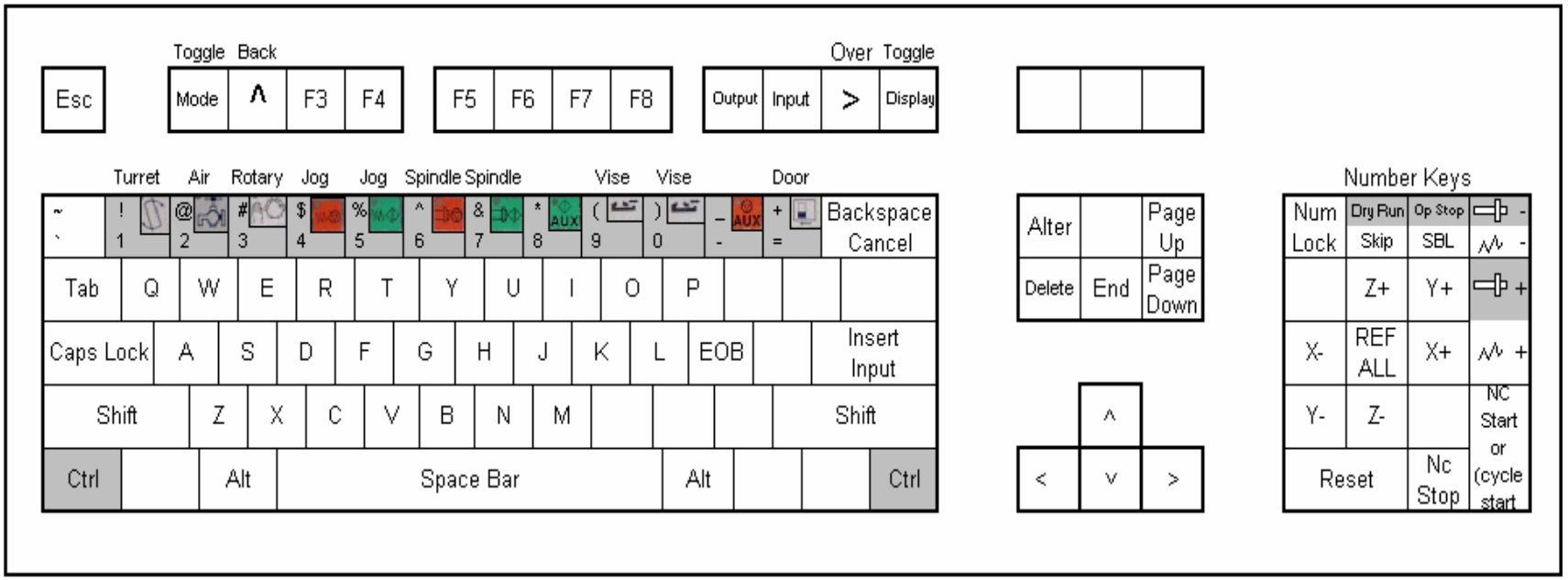
KEY (6) MOVES THE AXIS RIGHT (+X)

KEY (8) MOVES SPINDLE AXIS UP (+Z)

KEY (9) MOVES THE AXIS BACKWARDS (+Y)

HINT 2

The plus key on the number Keypad increases the feed rate
The minus key decreases the feed rate
Press & hold CTRL Key with the plus Key this increases the spindle speed
Press & hold CTRL Key with the minus key this decreases the spindle speed



1. Any key with Gray highlight Press Ctrl + the key for that function
2. Some keys have two functions to them for 1st function just press the key
3. 2nd function will be Grey press Ctrl + the key for the function
4. Some automative keys when you press them 1 time this will close/turn off press them again will open/turn on
5. F1 is a toggle key for the modes: Zero, Auto, Edit, MDI, Jog and F1 then F11 give Increment Step
6. F12 is a toggle key for the Display screens: Position, Program, Offsets, Parameter, Alarm and F12 then F11 then F3 gives Graph
7. F12 then F11 then F3 then F11 then F3 gives you 3D view
8. Press enter 2 times this is the same as pressing EOB insert
9. Alt + F4 will exit the software back to the desktop
10. The Top right corner will allow the screen to be minimized, restored and close just like a standard windows screen

The machine functions are active only with NUM LOCK on

Keys are active they will move the axes if used as numbers. Use numbers on the keyboard.

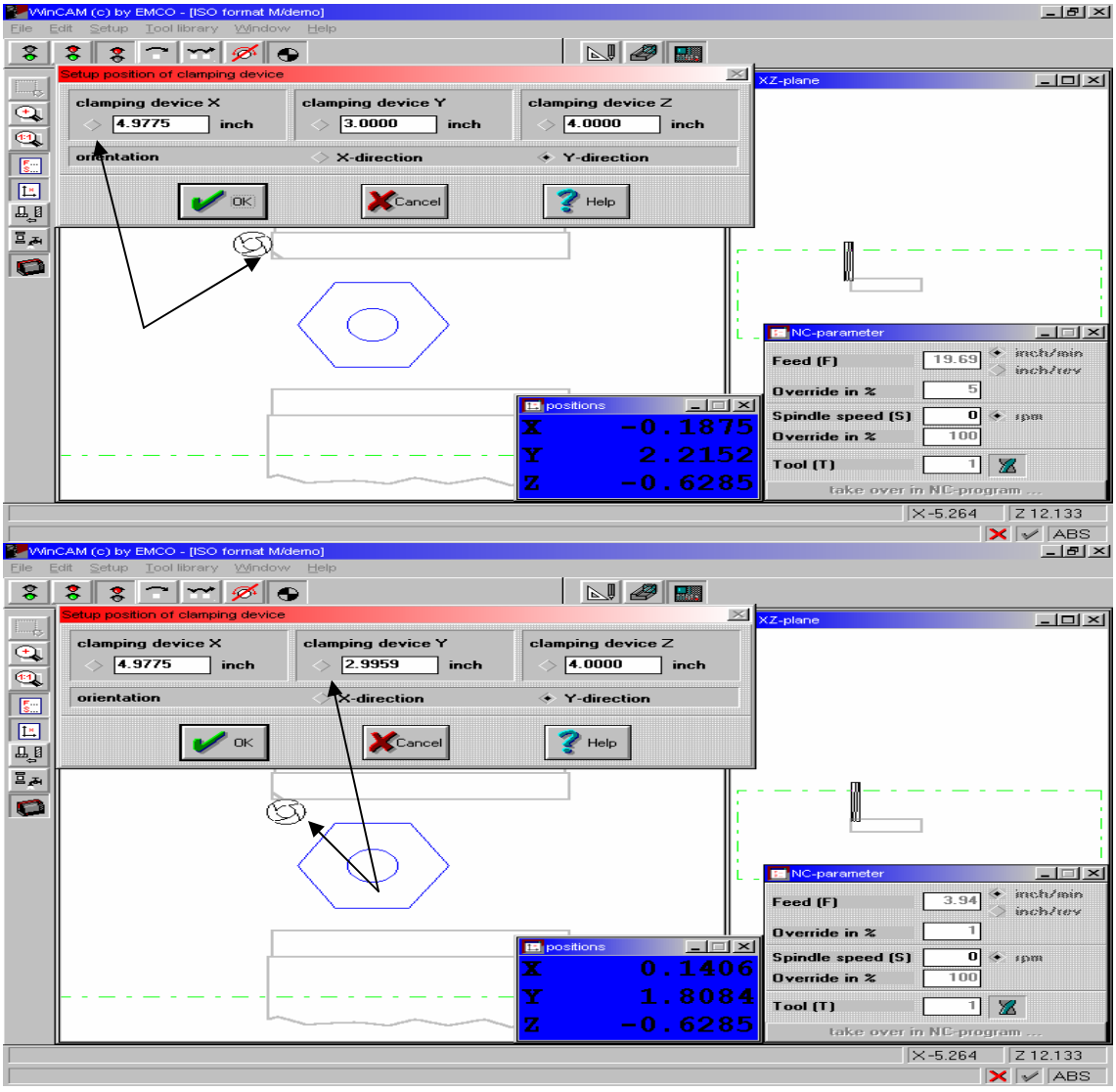
10) MOVE THE TOOL TO THE VISE & TOUCH EDGE OF THE VISE IN THE X AXIS DIRECTION

11) CLICK ON CLAMPING DEVICE X DIAMOND ICON  (THIS IS DISTANCE FROM MACHINE 0 TO VISE LOCATION IN X)

12) MOVE THE TOOL TO THE VISE & TOUCH FRONT EDGE OF THE VISE IN THE Y AXIS DIRECTION

13) CLICK ON CLIAMPING DEVICE Y DIAMOND ICON  (THIS IS DISTANCE FROM MACHINE 0 TO VISE LOCATION IN Y)

14) THEN CLICK OK



15) CLICK ON TOOL CHANGE ICON 

16) CLICK T2 EMPTY THEN CLICK O.K.

17) MOVE Z AXIS UP USING 8 ON # KEYS (TAKE TOOL OUT)

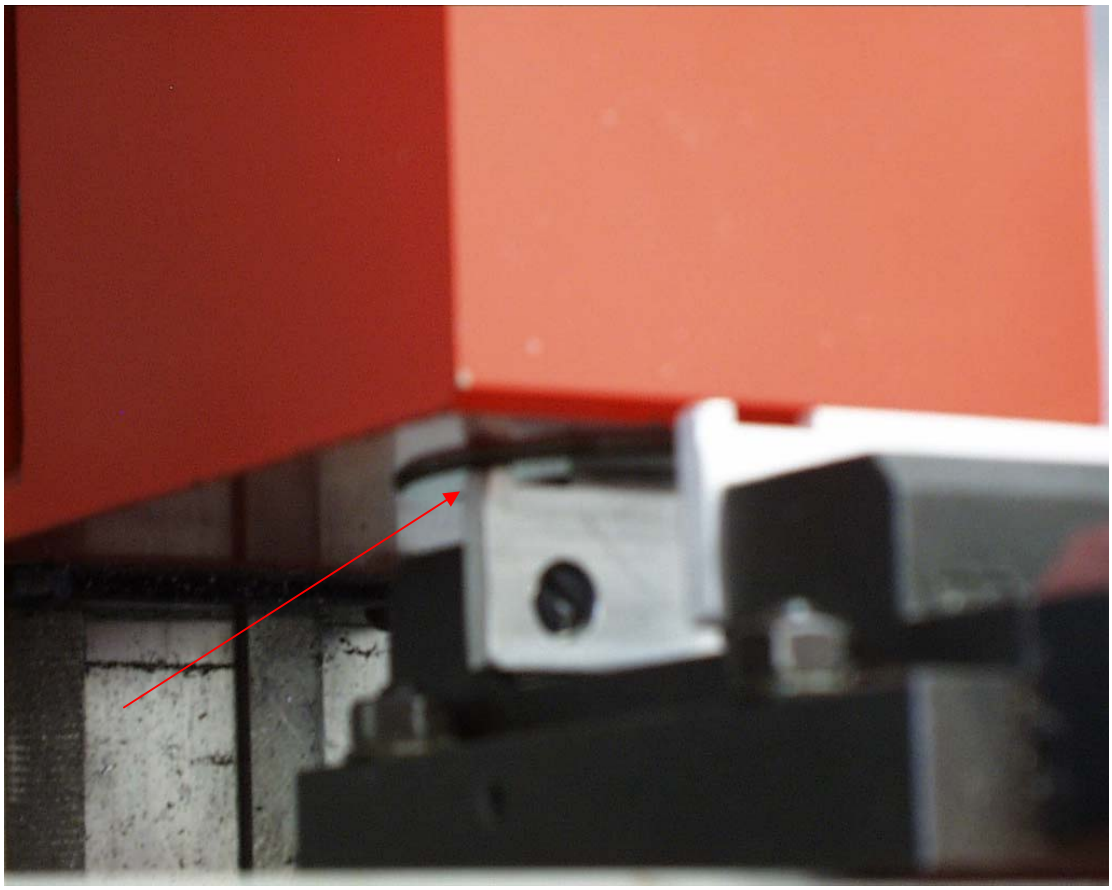
18) CLICK ON SETUP

19) CLICK ON DEFINE VISE POSITION

20) MOVE THE SPINDLE TO THE VISE & TOUCH ON THE TOP OF THE VISE IN THE Z AXIS DIRECTION

21) CLICK ON CLAMPING DEVICE Z DIAMOND ICON  (THIS IS DISTANCE FROM MACHINE 0 TO VISE LOCATION IN Z) THEN CLICK OK

22) MOVE THE Z AXIS UP



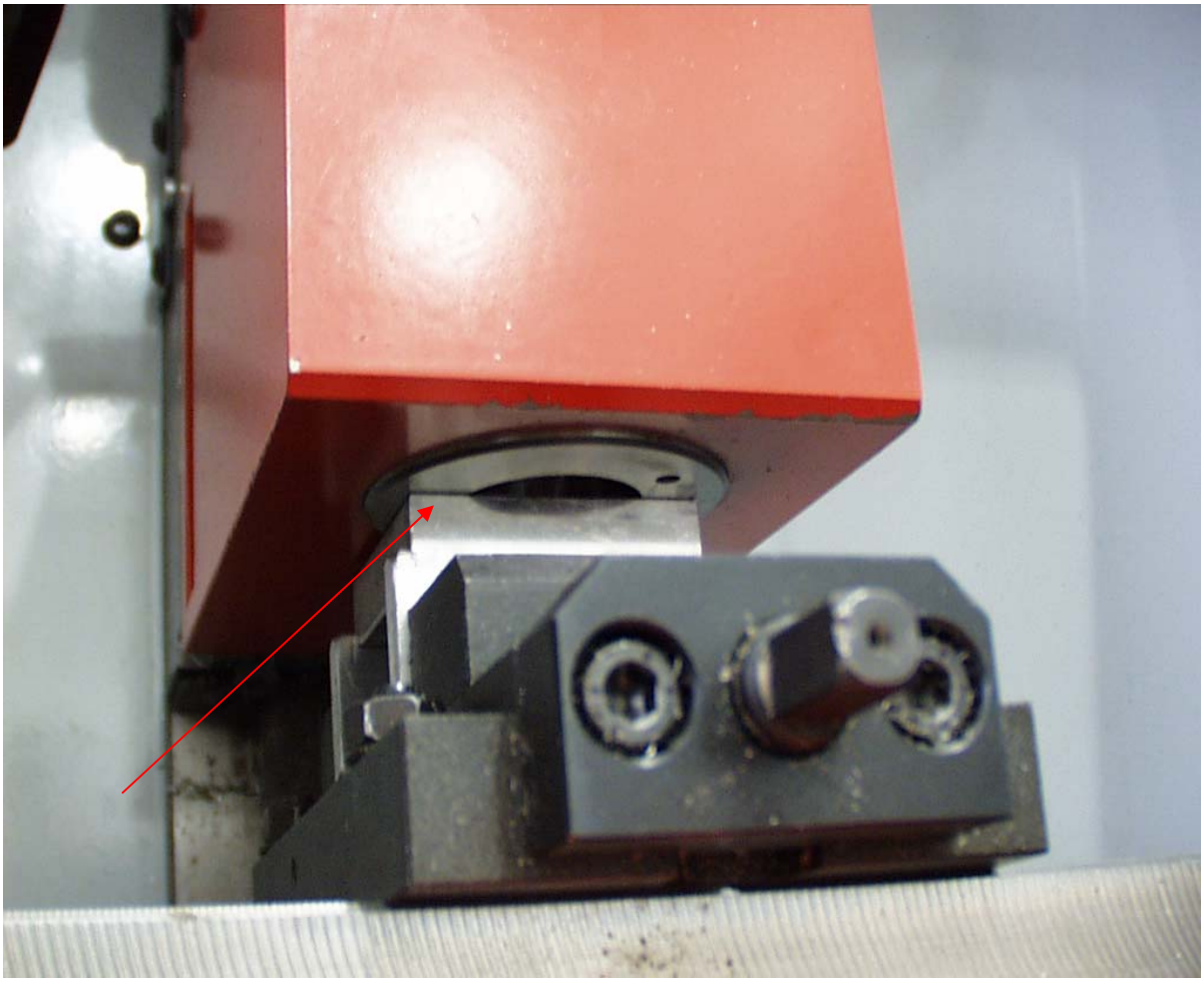
23) CLICK ON EDIT

24) CLICK ON MARK NC WORKPIECE

25) MOVE THE SPINDLE TO THE TOP OF THE WORKPIECE & TOUCH IN THE Z AXIS DIRECTION

26) CLICK ON THE WORKPIECE OFFSET Z DIAMOND ICON 

(WRITE DOWN NUMBERS ON PIECE OF PAPER) CLICK OK



27) MOVE THE Z AXIS UP USING 8 ON THE # KEYS

28) (PUT TOOL IN)

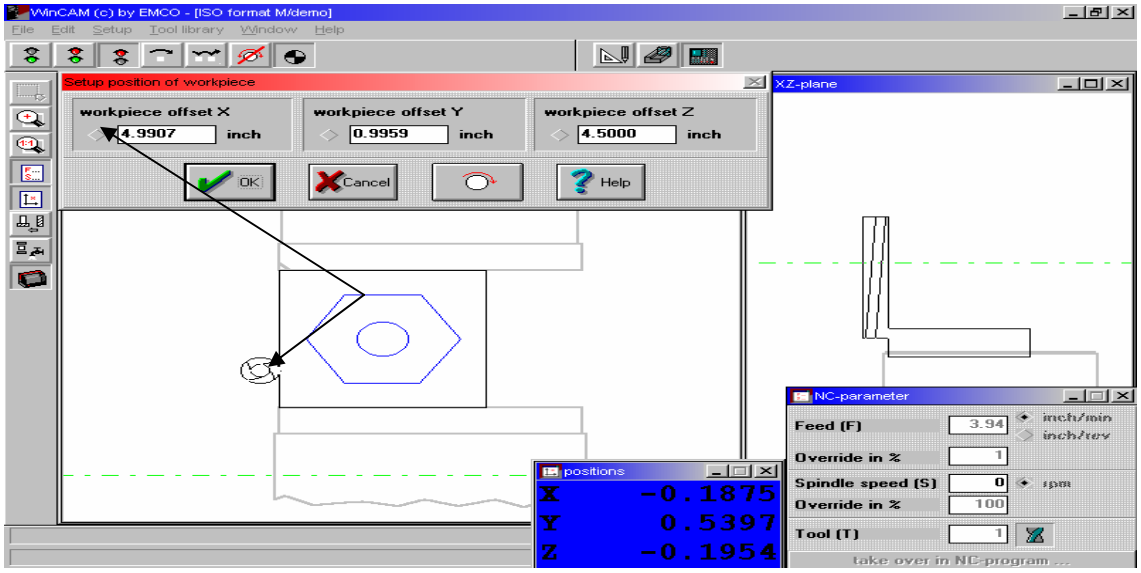
29) CLICK ON TOOL CHANGE ICON 

30) CLICK GRAY BOX T1, #3: 3/8” End Mill THEN CLICK O.K.

31) CLICK ON EDIT CLICK ON MARK NC WORKPIECE

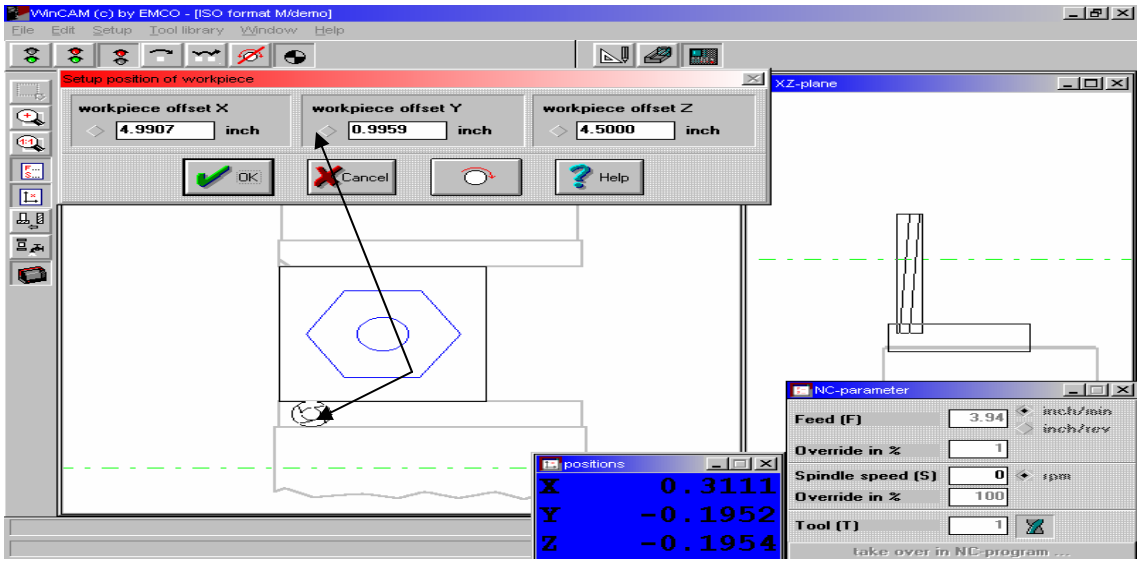
32) MOVE THE TOOL TO THE WORKPIECE & TOUCH SIDE OF WORKPIECE IN THE X AXIS DIRECTION

33) CLICK ON THE WORKPIECE OFFSET X DIAMOND ICON 



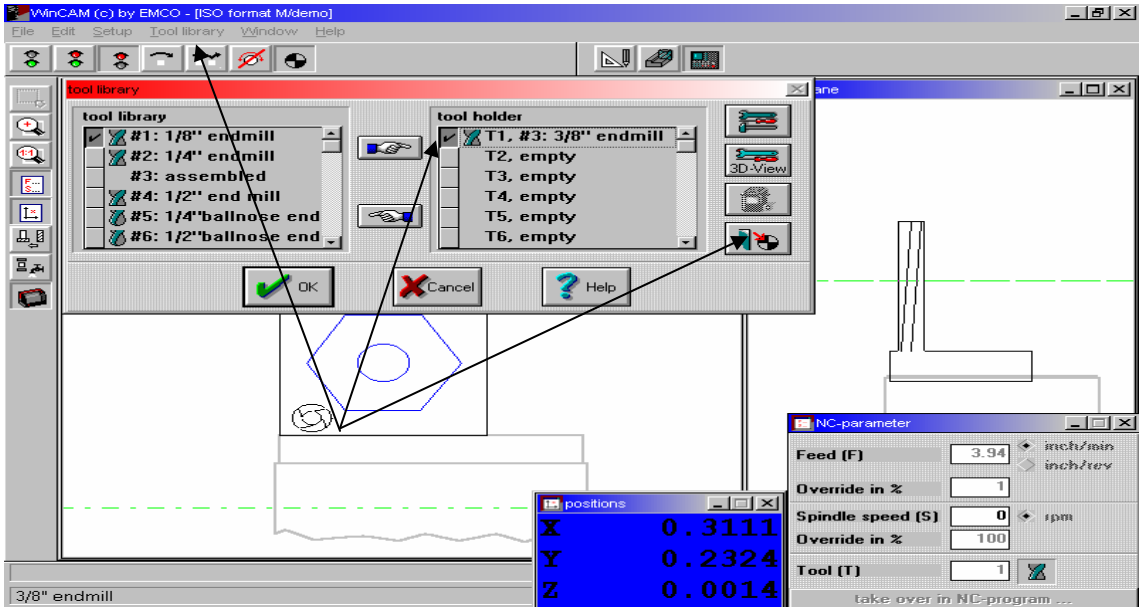
34) MOVE THE TOOL TO THE WORKPIECE & TOUCH FRONT OF WORKPIECE IN THE Y AXIS DIRECTION

35) CLICK ON WORKPIECE OFFSET Y DIAMOND ICON  THEN CLICK OK

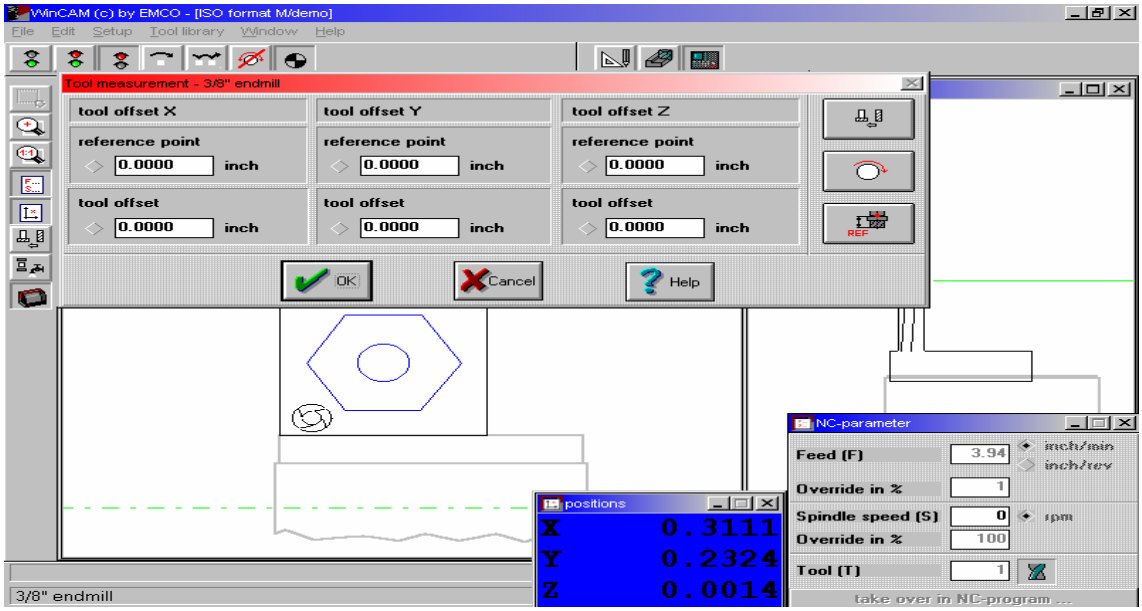


36) MOVE THE Z AXIS UP

37) CLICK ON TOOL LIBRARY CLICK ON T1 3/8 ENDMILL (UNDER TOOL HOLDER)



38) CLICK ON 



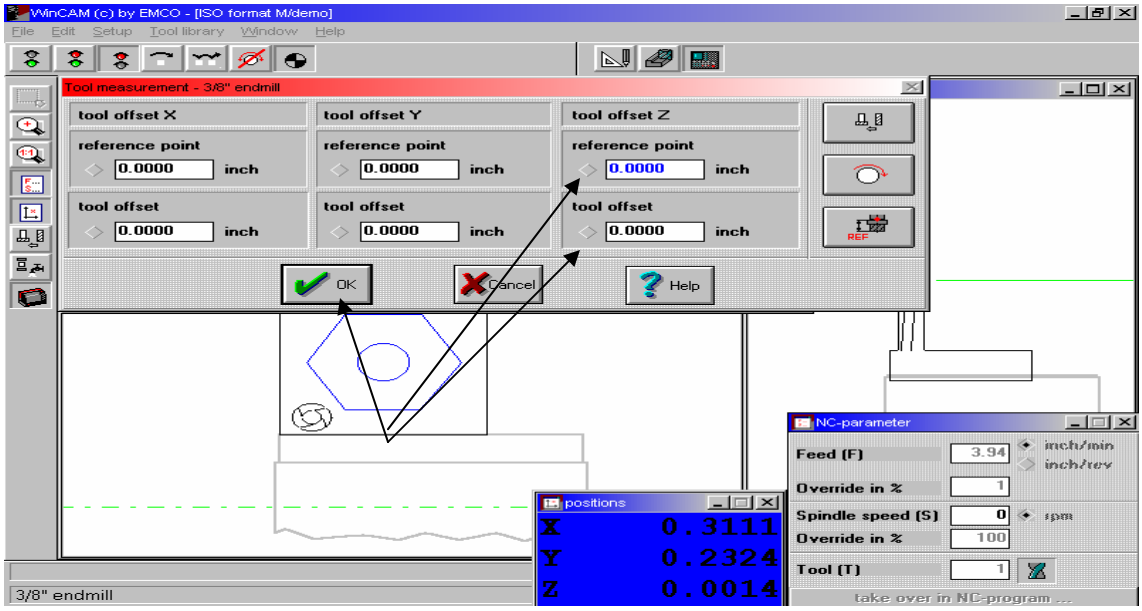
39) HIGHLIGHT TOOL OFFSET Z REFERENCE POINT

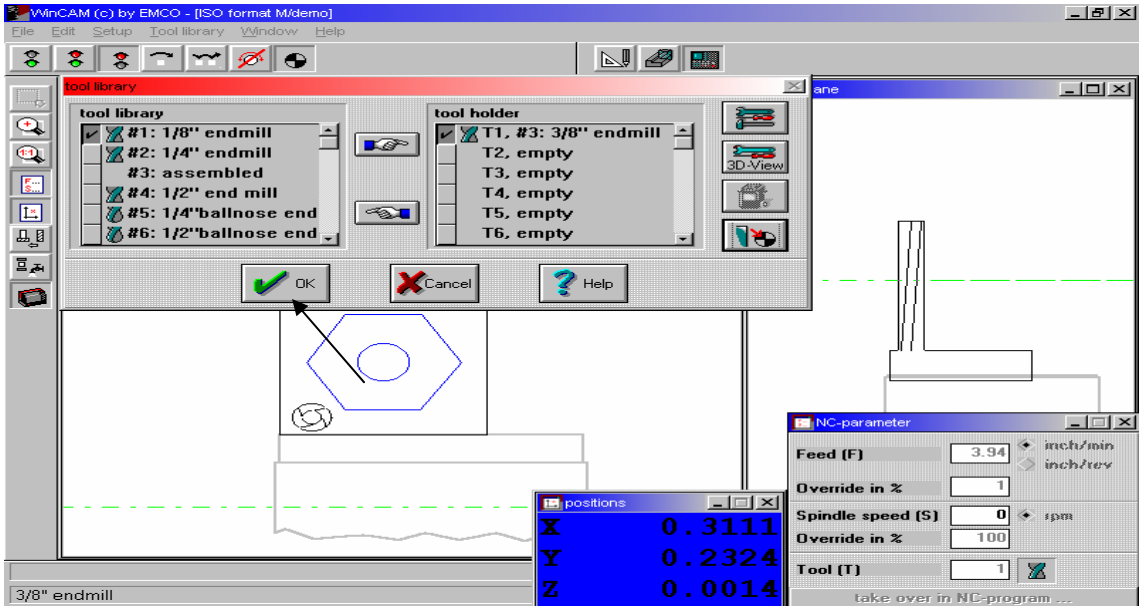
40) TYPE NUMBERS IN FROM LINE 26

41) MOVE TOOL DOWN & TOUCH THE TOP OF THE WORKPIECE

42) CLICK ON THE TOOL OFFSET Z TOOL OFFSET DIAMOND ICON CLICK OK 2 TIMES

DO STEPS 36- 42 FOR ANY OTHER TOOLS YOU WISH TO SET





NOW CLICK ON START PROGRAM (CYCLE START) 2 / 3 TIMES

Make sure tool is in the spindle

NOTE

Start program 

Stop program (NC stop) 

Stop program (Reset) 

Skip Block (skip) 

Single block operation (single) 

Test run without main spindle (dry run) 

Go for Reference