

## EZPath Software

I've obtained a good bit of information on installing software on the EZPath lathe. I've also obtained copies of the software disks and I'm going to provide instruction and the files to do a clean install on a machine.

**PREFACE:** This is being provided for information purposes only and should only be attempted by someone comfortable performing such an operation on a machine. **Performing this software install WILL ERASE ALL CURRENT DATA ON THE MACHINE and is done at your own risk.** I make no guarantees that this software will work on your machine. I've installed this software into a virtual machine but have not installed this into an actual machine. The following information was obtained from a very generous former Bridgeport Tech in the UK and i believe it to be complete, and accurate.

**\*\*Proceed with caution and follow all instructions precisely\*\***

Installing the software to the machine is not difficult but you must follow the procedure carefully.

I would highly recommend upgrading the original floppy disk drive to a USB-floppy emulator. I purchased a Gotek model#SFR1M44-U100 emulator from eBay for approximately \$40 USD.

This is not required, but it prevents read/write errors from aging drives. The read head can lose adjustment and cause problems. Old floppy drives can be unreliable.

To use the USB flash drive with the USB-Floppy emulator, you will need to download and install the USB-Floppy utility from <https://www.archfabandmachine.com/ezpath-home>.

**The outline below will detail the install using a USB emulator that has been already installed.**  
**You will also need a small capacity USB flash Drive and a full-size keyboard with a PS/2 connector.**

## Install Guide

**Step 1:** Download the software install package from <https://www.archfabandmachine.com/ezpath-home>.

**Step 2:** Read these instructions completely before doing anything to the machine.

**Step 3:** If your machine is currently operational, i would highly recommend making a backup of the machines hard disk before proceeding, in case the install cannot be completed. In that case, loading the backup will restore the machine to the previous operation. **Failure to make a backup, and failure to complete the installation, will result in an inoperable machine.**

**Step 4:** Included in the Software Download, are multiple files.

There is an install outline document that matches this guide, and there are two types of disk images.

The IMG files, are to be directly written to virtual floppy disks, to be used VIA USB to install software on the machine.

The IMZ files, are sometimes needed for writing physical floppy disks.

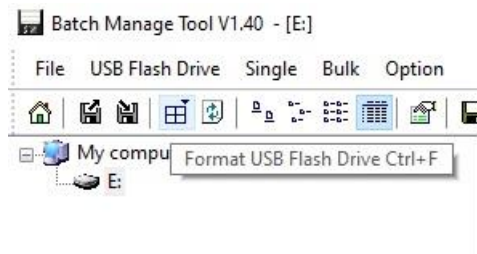
I've included both types, so if needed, they are there. We will only use IMG files in this guide.

Extract the files to a directory on your computer and remember that location.

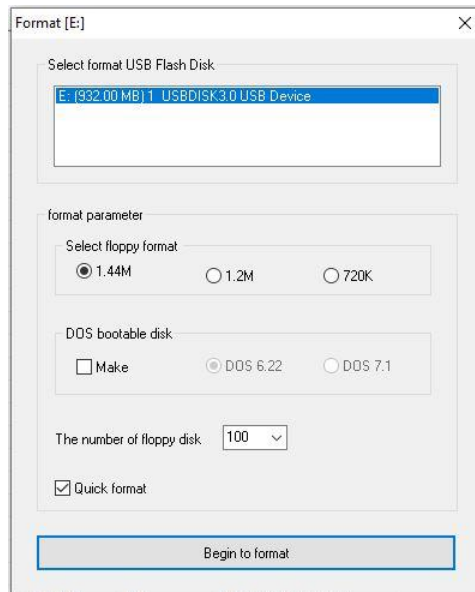
## Virtual Disk Creation

**Step 5:** Using Floppy emulator software, we will create virtual floppy disks. After opening the USB-Floppy Utility, insert your USB flash drive to your computer. You will see your USB stick in the navigation area on the left side of the screen.

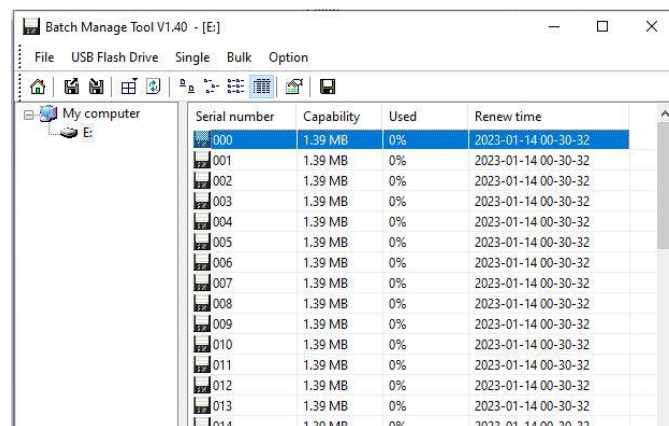
Click the “Format” button in the menu ribbon and follow the prompts.



The default settings are good, I use “quick format” when processing my USB flash drive.

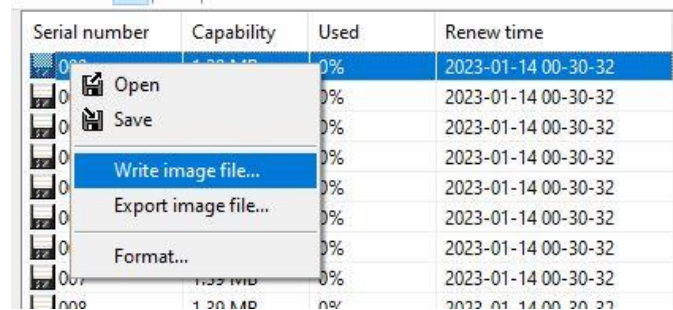


This process will divide your USB Flash drive into 100x virtual 1.44MB Floppy devices. You can write the EZPath software to these disk images.

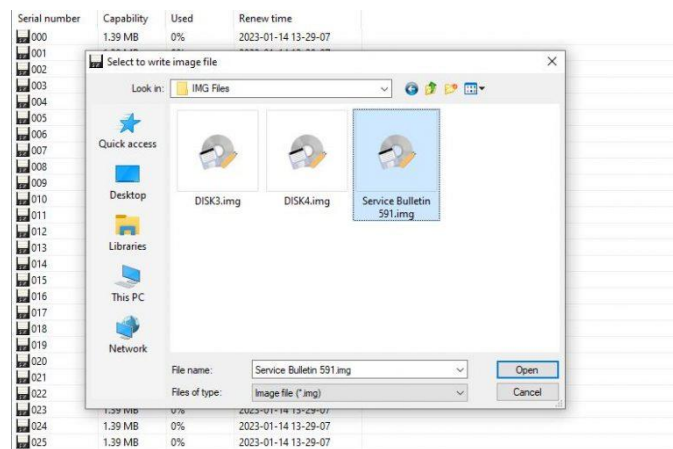


**Step 6:** Once formatting is complete, write the software disk images to virtual disks.

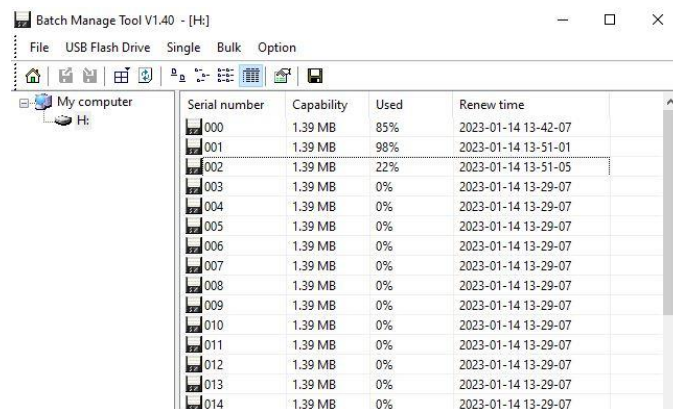
Right click the floppy image “000” and select write image file.



Navigate to the extracted disk images and select the “Service Bulletin 591” IMG file and click open.



The software will show the image has been written to the virtual disk when the “Used” column reflects 85%.



Repeat this process for virtual disk “001” and “002”, writing images “Disk1.IMG” and “Disk2.IMG” respectively.

When finished, eject the USB stick from your computer.

# Hard Disk Partition and DOS Install

**Step 7:** Insert the USB flash drive into the Floppy emulator on the machine and turn the machine on.

The machine will boot from the Service “Bulletin 591” disk that was written to Virtual Disk “000”. This disk formats the drive and installs DOS operating system to the machine. Follow the prompts to create a primary DOS partition on the machines hard disk.

When complete, the machine will prompt to reboot. Leave the USB flash drive inserted, and it will reboot to the same menu.

```
MS-DOS Version 6
Fixed Disk Setup Program
(C)Copyright Microsoft Corp. 1983 - 1993

FDISK Options

Current fixed disk drive: 1

Choose one of the following:

1. Create DOS partition or Logical DOS Drive
2. Set active partition
3. Delete partition or Logical DOS Drive
4. Display partition information

Enter choice: [1]

Press Esc to exit FDISK
```

```
Create DOS Partition or Logical DOS Drive

Current fixed disk drive: 1

Choose one of the following:

1. Create Primary DOS Partition
2. Create Extended DOS Partition
3. Create Logical DOS Drive(s) in the Extended DOS Partition

Enter choice: [1]

Press Esc to return to FDISK Options
```

```
Create Primary DOS Partition

Current fixed disk drive: 1

Do you wish to use the maximum available size for a Primary DOS Partition
and make the partition active (Y/N).....? [Y]

Press Esc to return to FDISK Options
```

```
System will now restart

Insert DOS system diskette in drive A:
Press any key when ready . . .
```

**Upon reboot, Press ESC to exit FDisk utility** and it will prompt you to format the hard disk. **Note “ALL DATA WILL BE LOST”**. Follow the prompts confirming by pressing “Y” on the keyboard until DOS is successfully installed. It will prompt you to remove the disk and install the CNC software.

```
WARNING: ALL DATA ON NON-REMOVABLE DISK
DRIVE C: WILL BE LOST!
Proceed with Format (Y/N)?y

Formatting 99.88M
Format complete.

Volume label (11 characters, ENTER for none)?

104,513,536 bytes total disk space
104,513,536 bytes available on disk.

2,048 bytes in each allocation unit.
51,032 allocation units available on disk.

Volume Serial Number is 035D-170E

This diskette will now load the MS-DOS 6.20 System onto a flash disk.
Do you wish to do this[Y,N]?
```

```
A:\DOS\EDIT.COM
A:\DOS\EDIT.HLP
A:\DOS\EXPAND.EXE
A:\DOS\FXC.EXE
A:\DOS\FONTLOAD.EXE
A:\DOS\FORMAT.COM
A:\DOS\HELLO.FON
A:\DOS\HIMEM.SYS
A:\DOS\MEM.EXE
A:\DOS\MODE.COM
A:\DOS\MORE.COM
A:\DOS\MOVE.EXE
A:\DOS\MSD.COM
A:\DOS\MSD.EXE
A:\DOS\PRINT.EXE
A:\DOS\QBASIC.EXE
A:\DOS\SCANDISK.EXE
A:\DOS\SMARTDRV.EXE
A:\DOS\SYS.COM
A:\DOS\UNDELETE.EXE

31 file(s) copied

Please remove this disk from drive A and re-boot to load
the CNC software.
C:\DOS>
```

# EZPath Software Install

**Step 8:** **Remove the flash drive** and turn off the machine. Wait 30 seconds, and power the machine back on.

**Step 9:** When the machine powers back up, it will ask to verify the date and time, then display the DOS version.

```
Starting MS-DOS...

Current date is Sat 01-14-2023
Enter new date (mm-dd-yy):
Current time is 3:40:02.54p
Enter new time:

Microsoft(R) MS-DOS(R) Version 6.20
(C)Copyright Microsoft Corp 1981-1993.

C:\>_
```

Insert the USB flash drive and press the button on the USB Emulator that the Flash drive is inserted into, until the LED display reads "01".

This switches the virtual floppy disk on the USB flash drive to disk 01, which is where the EZPath Disk1 image is written.

**At this point commands need to be run from the command prompt. It is critical they are entered EXACTLY as written.**

Type the following command:

A:\INSTALL.BAT

```
Starting MS-DOS...

Current date is Sat 01-14-2023
Enter new date (mm-dd-yy):
Current time is 3:40:02.54p
Enter new time:

Microsoft(R) MS-DOS(R) Version 6.20
(C)Copyright Microsoft Corp 1981-1993.

C:\>A:\INSTALL.BAT_
```

A prompt will appear confirming the installation of the software. Press any key, and it will install the EZPath software to the machine.

Once the install finished, and you see the prompt to restart the machine, **DO NOT SWITCH POWER TO THE MACHINE.**

Press the button on the USB Emulator to select disk "02" on the LED display to select Disk2 image.

Again, Type the following command:

A:\INSTALL.BAT

```

EZ-PATH INITIAL INSTALLATION PROGRAM FOR THE MACHINE

Installing EZ-PATH....
This disk is for +[1:5m]INITIAL INSTALLATION+[0m on the machines only.
This will +[1:5m]WIPE+[0m any other previous installations.
Press any key to continue . . .

```

```

Exploding: ROUGH1.PCX
Exploding: ROUGH2.PCX
Exploding: ROUGH3.PCX
Exploding: ROUGH4.PCX
Exploding: ROUGH5.PCX
Exploding: THREAD0.PCX
Exploding: THREAD1.PCX
Exploding: THREAD2.PCX
Exploding: THREAD3.PCX
Exploding: THREAD4.PCX
File not found
File not found
File not found
File not found
c:\ezpath\hmdc bin => c:\hmdc bin [ok]
c:\ezpath\nezload.exe => c:\nezload.exe [ok]
c:\ezpath\pfm.exe => c:\pfm.exe [ok]
c:\ezpath\reset.exe => c:\reset.exe [ok]
c:\ezpath\hmdcprms.ep1 => c:\hmdcprms.ep1 [ok]
c:\ezpath\hmdcprms.ep2 => c:\hmdcprms.ep2 [ok]
c:\ezpath\hmdcprms.ep3 => c:\hmdcprms.ep3 [ok]
c:\command.com => c:\dos\command.com [ok]
PLEASE INSERT THE PARAMETER DISK IN DRIVE A: AND THEN RE-BOOT THE MACHINE.
C:\EZPATH>A:\INSTALL.BAT_

```

The machine will inform you that it will install the parameter files for different machines. Press “Y” to continue with the installation.

The machine will prompt for you to select the machine from the list by pressing the corresponding number.

In my case, my machine is a EZPath S, so i will press “2”.

After it copies the parameter file to the hard disk, follow the prompt to remove the flash drive from the USB-floppy emulator, and restart the machine.

```

THIS PROGRAM WILL INSTALL THE PARAMETER FILE FOR AN EZ-PATH I,
EZ-PATH S, EZ-PATH SD, EZ-PATH II, EZ-PATH IISD, OR EZ-PATH IIS.
MACHINE.

YOU WILL BE PROMPTED FOR THE MACHINE TYPE (EZ-PATH I, EZ-PATH S,
EZ-PATH SD, EZ-PATH II, EZ-PATH II SD, OR EZ-PATH IIS) THEN THE
SPINDLE OR MODEL OPTION IF ANY AND FINALLY THE BED LENGTH (48",
60", 80", OR 120").

IF YOU ENTER AN INCORRECT SELECTION YOU MUST RUN INSTALL.BAT AGAIN
AND ENTER THE CORRECT SELECTION.

DO YOU WISH TO INSTALL THE PARAMETER FILE NOW[Y,N]?_

```

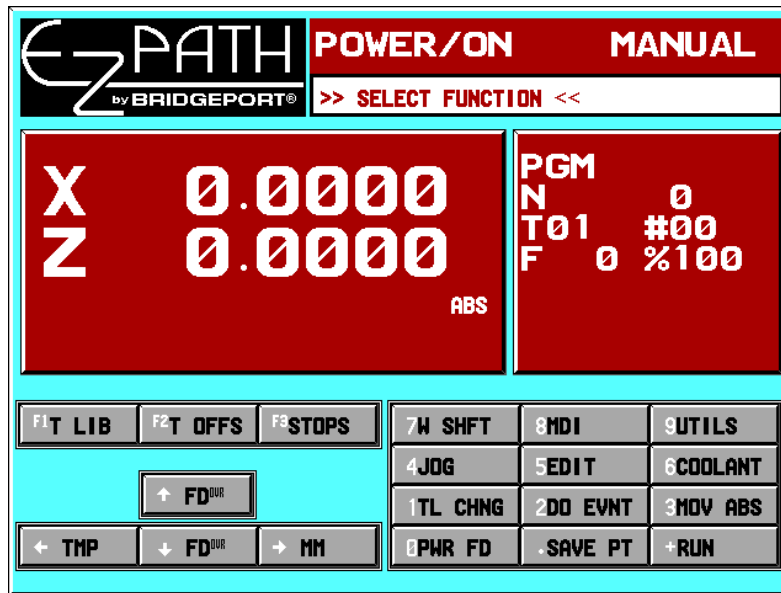
```

DO YOU WISH TO INSTALL THE PARAMETER FILE NOW[Y,N]?Y
MACHINE TYPE
1 EZ-PATH I
2 EZ-PATH S
3 EZ-PATH SD
4 EZ-PATH II
5 EZ-PATH II SD
6 EZ-PATH IIS
ENTER MACHINE TYPE[1,2,3,4,5,6]?2
EZ-PATH S
1 file(s) copied
Reading existing parameter file...
Updating parameter file...
*****
* The update is complete.
*****
Bad command or file name

REMOVE THIS DISK FROM DRIVE A AND THEN RE-BOOT THE MACHINE
C:\EZPATH>

```

## EZpath Software Configuration

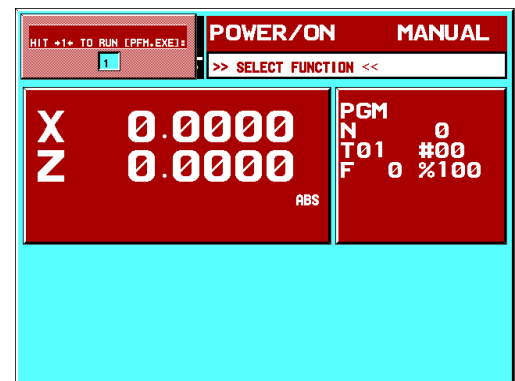
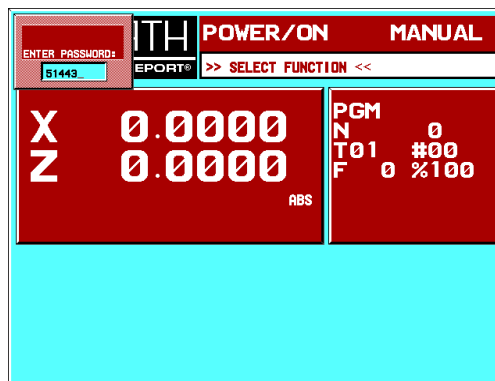
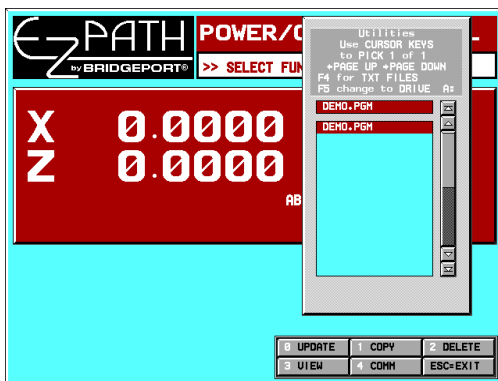


**Step 10:** When the machine finishes booting, you should see the EZPath Software. It will perform a BMCD Self-Test with a countdown, and when completed you should see the main screen of the software. Depending on your exact model of machine, and the options it has, you need to enter the parameter editor and change some parameters.

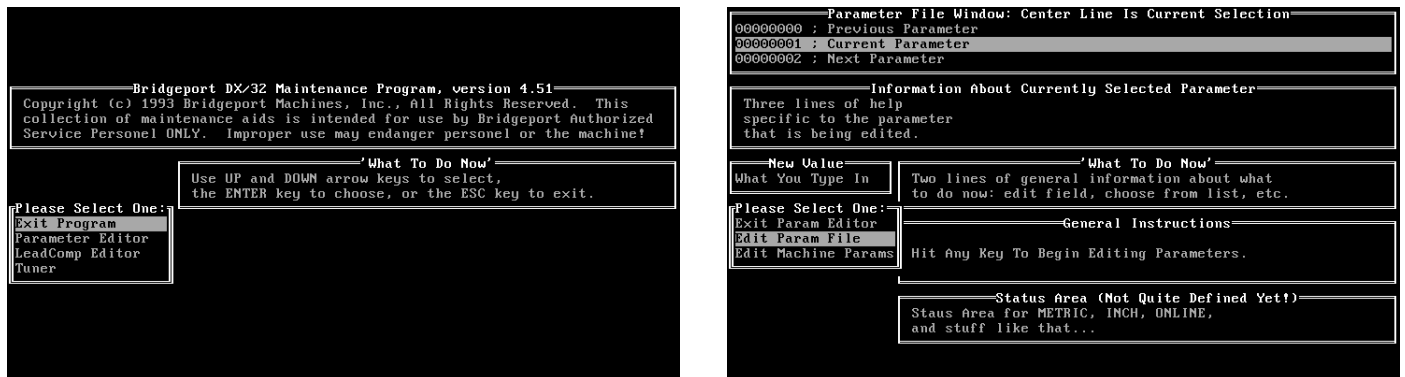
**For Example:** My personal machine is equipped with an 8 Position tool turret. This requires me to change parameters in the machine to recognize and enable that functionality.

**Step 11:** To enter the parameter editor you will need to bring up a hidden menu by pressing “9” to enter the “UTILS” menu, then press “\*” to enter the hidden menu.

When prompted for the password, enter “51443” and press enter. Press “1” to enter “PFM” parameter editor.



When inside the parameter editor, select “edit param file” to get to the machine parameters.



From the information I received from the Bridgeport Tech, Parameters should be set as follows:

**Parameter #83:** Set to 600

**Parameter #84:** Set to Zero

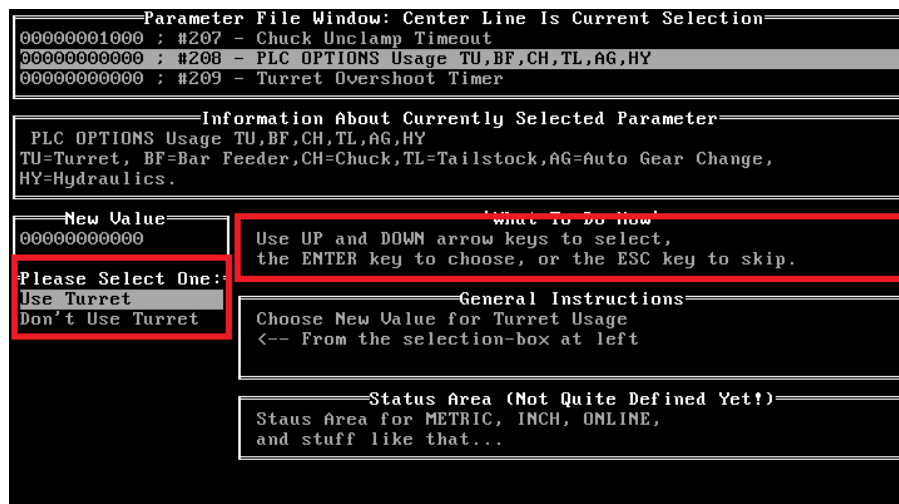
**Parameter #250:** Set to 50

**Parameter #208:** This parameter enables functionality of things like the tool turret, pneumatic tailstock, and other features.

When you press enter, you will be prompted for different options. After all options are selected, it will set the correct value to the parameter.

**For most machines, the answer to all questions will be “Don’t Use”.**

**For 1SD machines, set only “Use Auto Gear Select”.**



At this point the machine **SHOULD** be operational.

**Step 12:** One last parameter to check is Parameter #71. This parameter controls the spindle output gain. When running spindle, if the RPM displayed on the control doesn’t match the commanded spindle RPM, you can adjust this value to get more accurate spindle RPM.



For Example: If you set RPM to 1000rpm, and the control readout displays 1075, you would lower this number, until spindle RPM Reads as close to 1000rpm as you can get it.

Parameter File Window: Center Line Is Current Selection	
00000000047 ; #70 - Spindle Velocity Sample Period	
00000033096 ; #71 - Spindle Command Gain	
00000000025 ; #72 - Spindle-Motor Minimum RPM	
Information About Currently Selected Parameter	
Spindle Command Gain	
Scale factor for Spindle speed commands - formula for Spindle Gain	
is: $\text{SpindleGain} = (\text{MaxDacCnt}/2) \times (\text{MaxDesiredVoltage}/10) \times (\text{MaxRPM}/4096).$	
New Value	'What To Do Now'
3.000078	Enter new value in SIMPLE (typeless) units
Parameter File Maintenance Program 4.51 (c) Copyright 1993, Bridgeport Machines, Inc. All Rights Reserved.	General Instructions Use <UP> and <DOWN> arrow keys to scroll through params, the <G> key to Goto, <ENTER> to edit one, <ESC> to exit.
Status Area (Not Quite Defined Yet!)	
Staus Area for METRIC, INCH, ONLINE, and stuff like that...	

**Step 13:** After setting parameters, make sure to save changes when exiting.

Parameter File Window: Center Line Is Current Selection	
00000000047 ; #70 - Spindle Velocity Sample Period	
00000033096 ; #71 - Spindle Command Gain	
00000000025 ; #72 - Spindle-Motor Minimum RPM	
Information About Currently Selected Parameter	
New Value	'What To Do Now'
	Use UP and DOWN arrow keys to select, the ENTER key to choose, or the ESC key to skip.
Please Select One: NO-Discard Changes YES-Update File	General Instructions Save Changes to Parameter File? Choose Your Response <-- From the selection-box at left
Status Area (Not Quite Defined Yet!)	
Staus Area for METRIC, INCH, ONLINE, and stuff like that...	

A shut down and restart of the machine should bring the machine to main screen. Home the machine and test all functions.

**Software installation should be complete.**