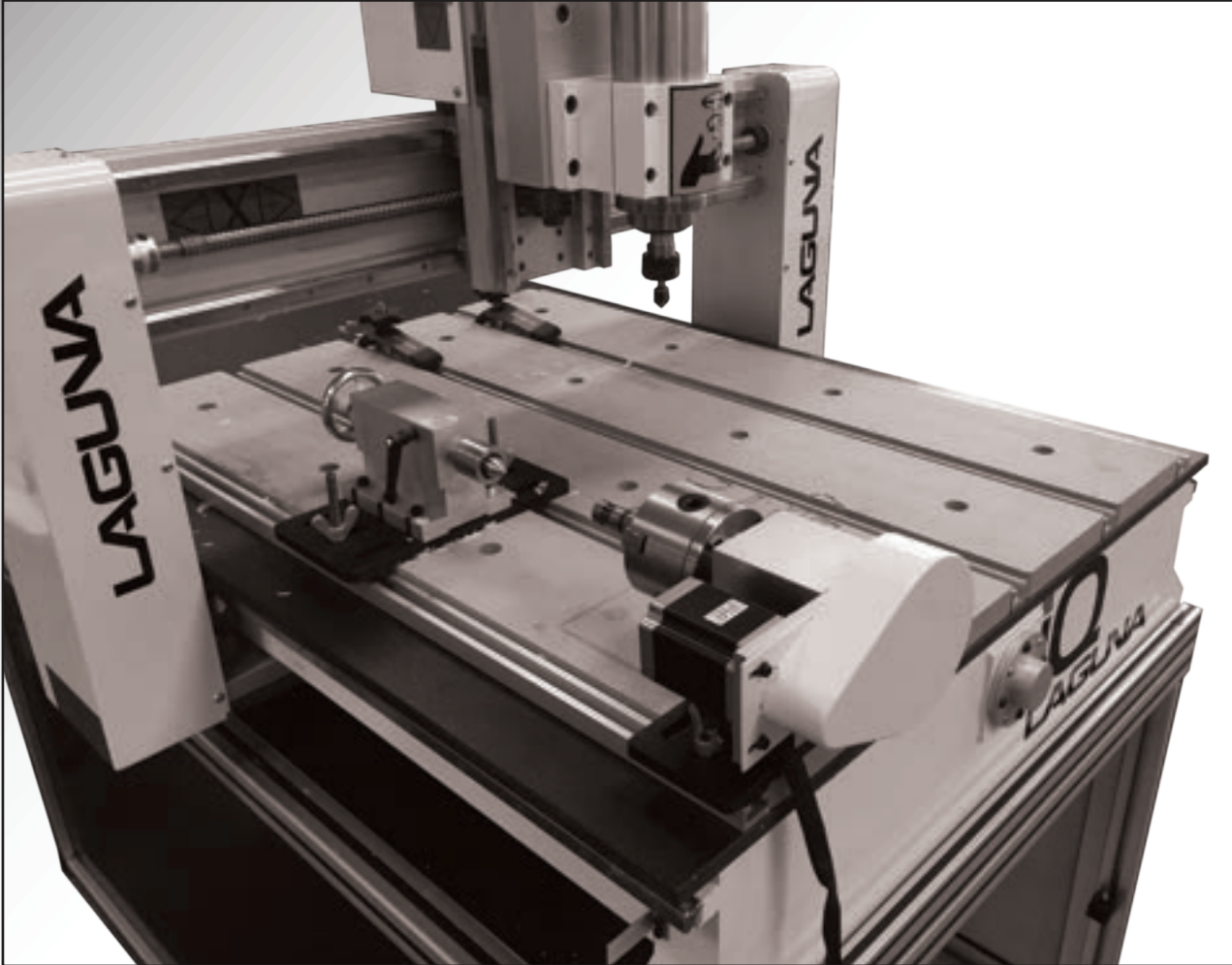


ADDITION AND USE OF 4-AXIS ON IQ HHC

COMPONENTS NEEDED: TURNING UNIT AND TAILSTOCK



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A18E HHC

- STEPPER DRIVER M542-05



- HARNESS FOR STEPPER DRIVER



INSTALLATION OF PARTS

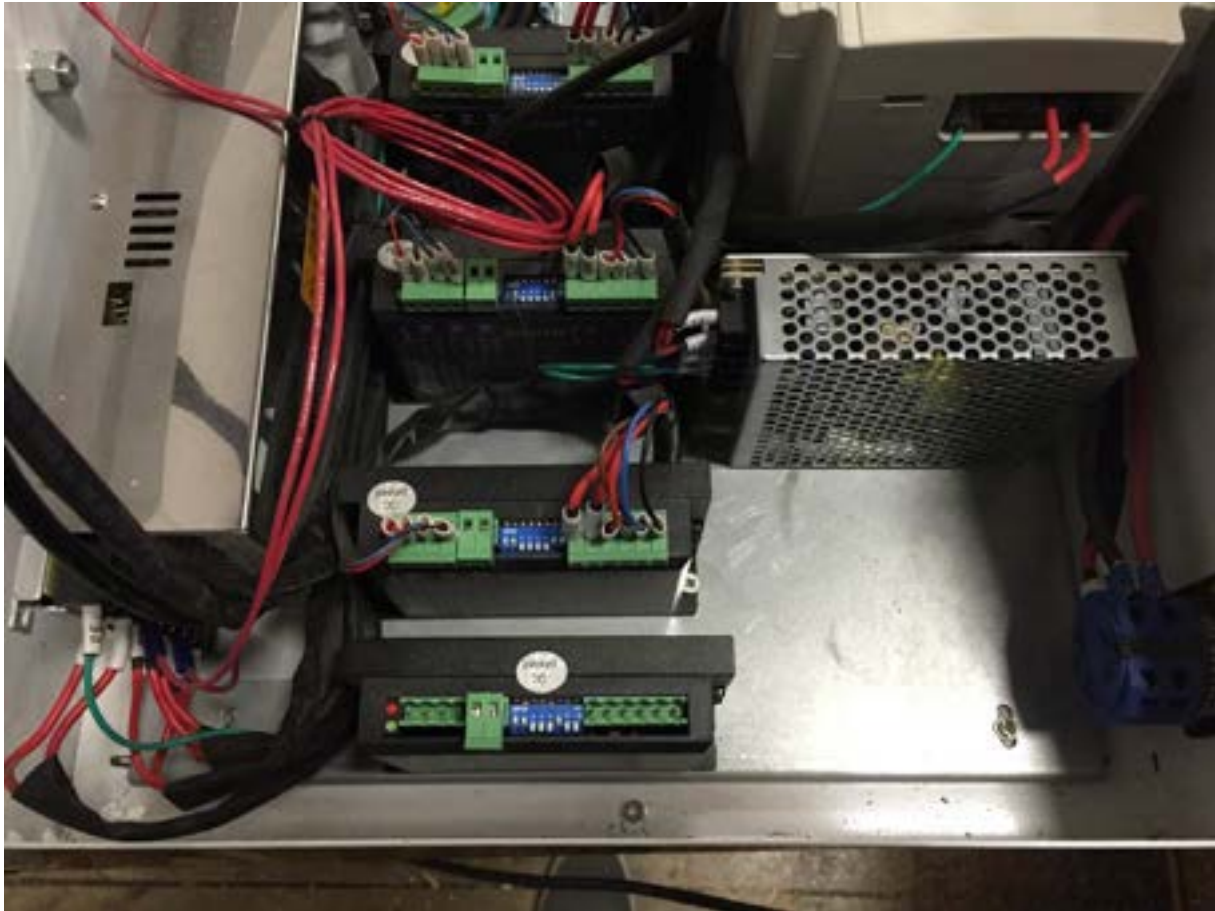
-MAKE SURE POWER IS DISCONNECTED THEN REMOVE COVER ON ELECTRICAL PANEL



REMOVE THE LID AND PLACE IT TO THE SIDE YOUR PANEL SHOULD LOOK LIKE THIS IF YOUR MACHINE IS UNDER 2YRS OLD IF OLDER IT MAY BE DIFFERENT YOU WILL HAVE TO DRILL A HOLE FOR THE MOTOR PLUG

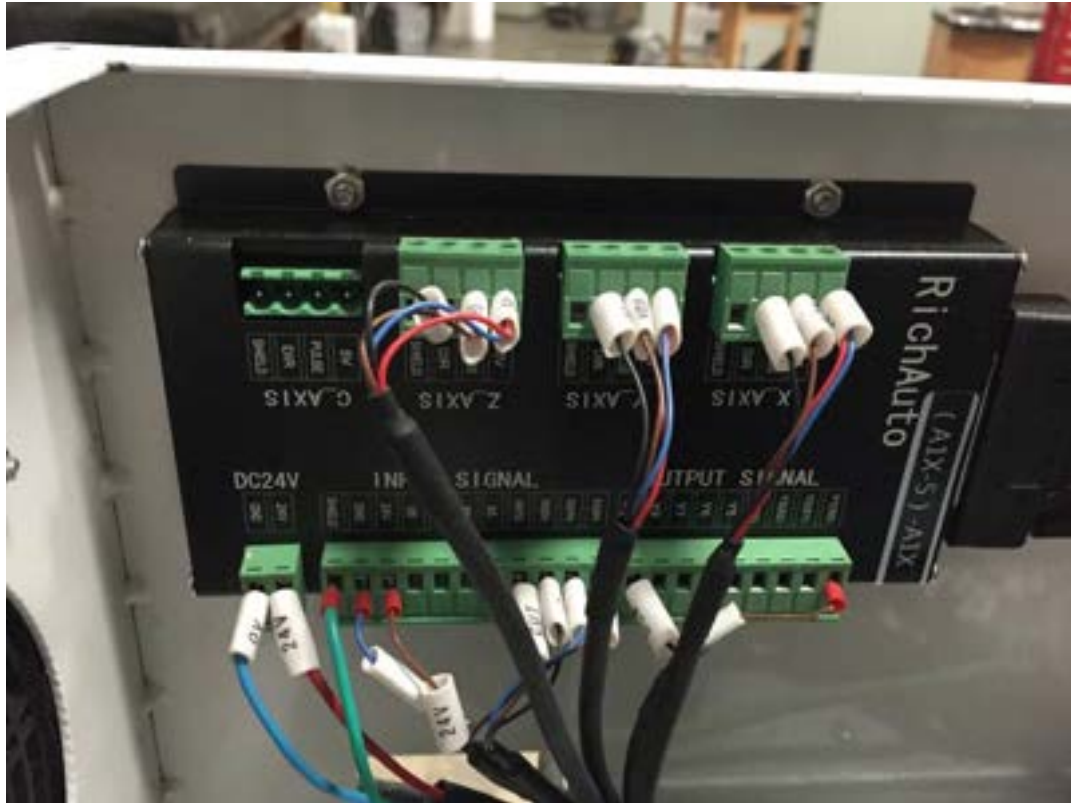


NOW TAKE THE STEPPER DRIVER AND BOLT IT IN PLACE

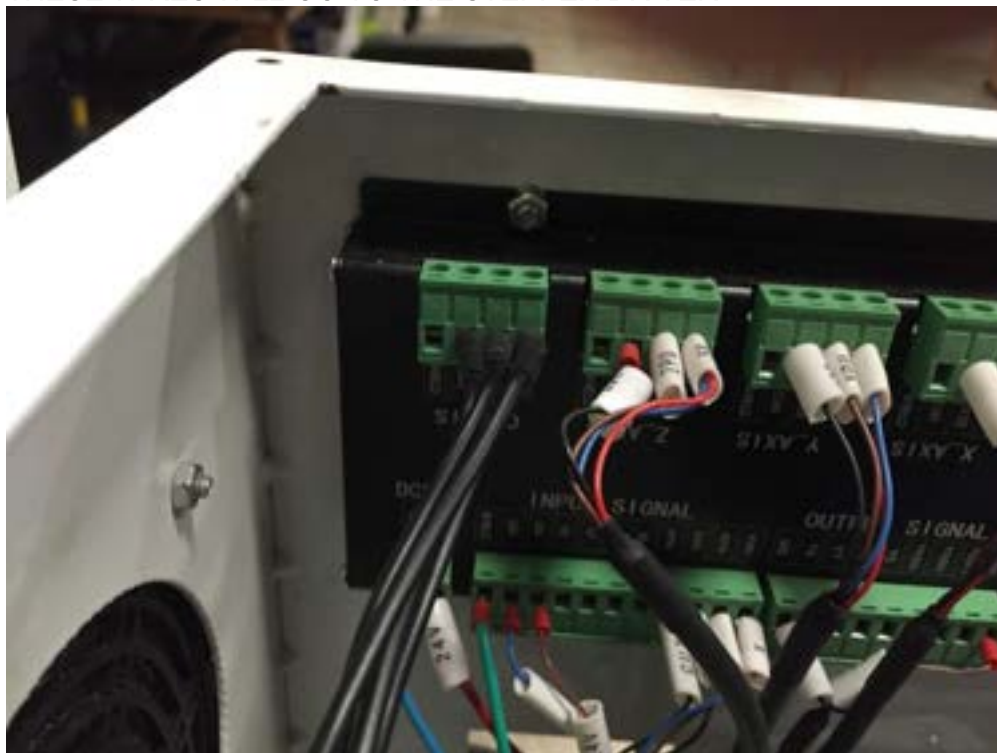


SECURE THE DRIVER WITH M4 BOLTS OR EQUIVALENT. ONCE SECURE LOCATE THE HARNESS PROVIDED TO POWER AND CONTROL THE DRIVER

LOCATE CONTROL CARD AND CONNECT PUL/DIR/5V WIRES



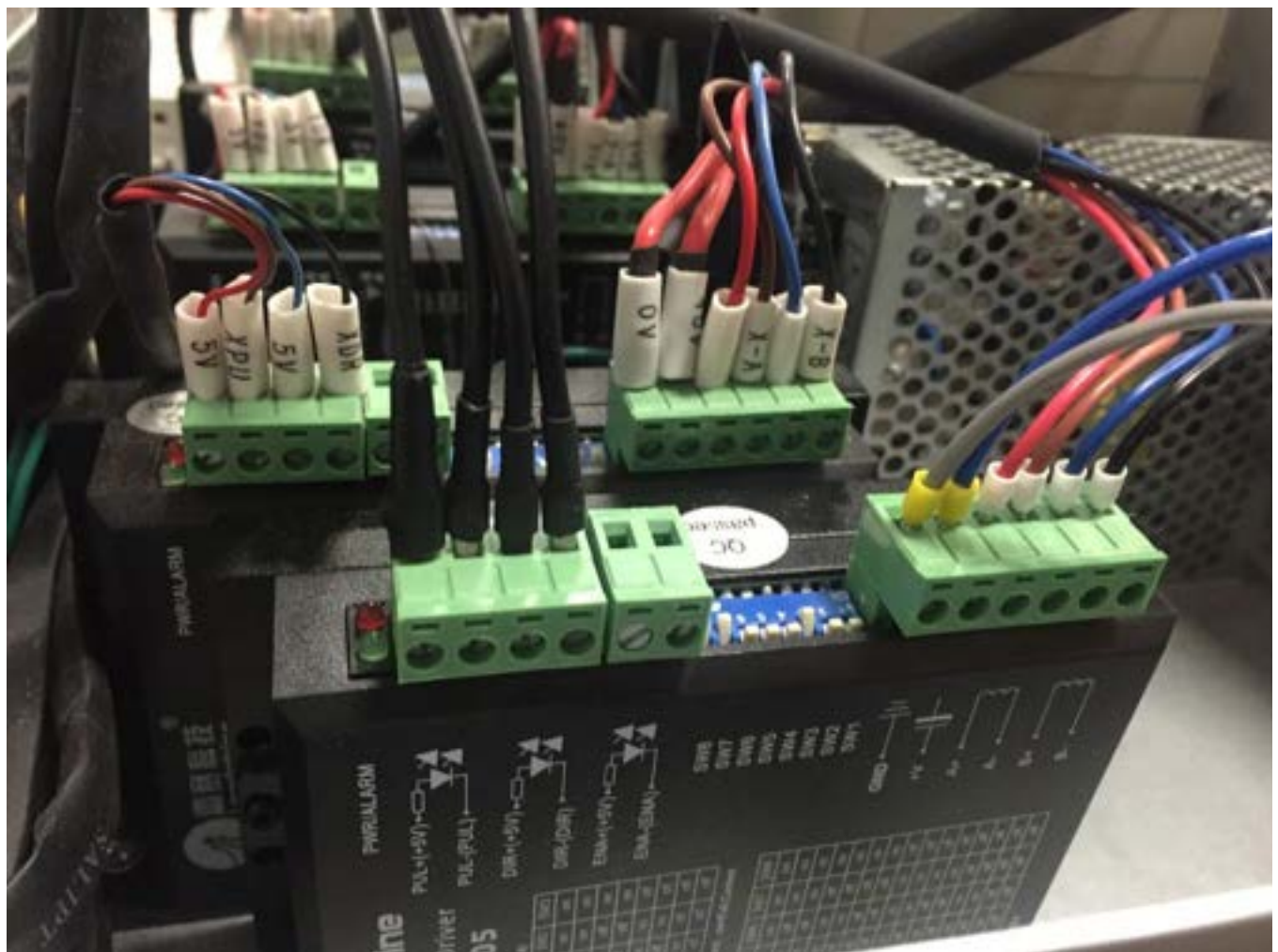
ONCE WIRED IT SHOULD LOOK LIKE THIS
THESE WIRES WILL GO TO THE STEPPER DRIVER



LOCATE THE 40V POWER SUPPLY AND ATTACH THE POWER LEADS FOR THE DRIVER
CONNECT THE GREY WIRE TO **0V** AND THE BLUE WIRE TO **40V**



TAKE WIRES FROM THE CONTROL CARD AND POWER SUPPLY AND PLUG THEM INTO THE STEPPER DRIVER



NOW YOU WILL NEED TO DRILL A HOLE IN THE BACK OF THE PANEL AND BOLT IN THE PLUG FOR THE MOTOR

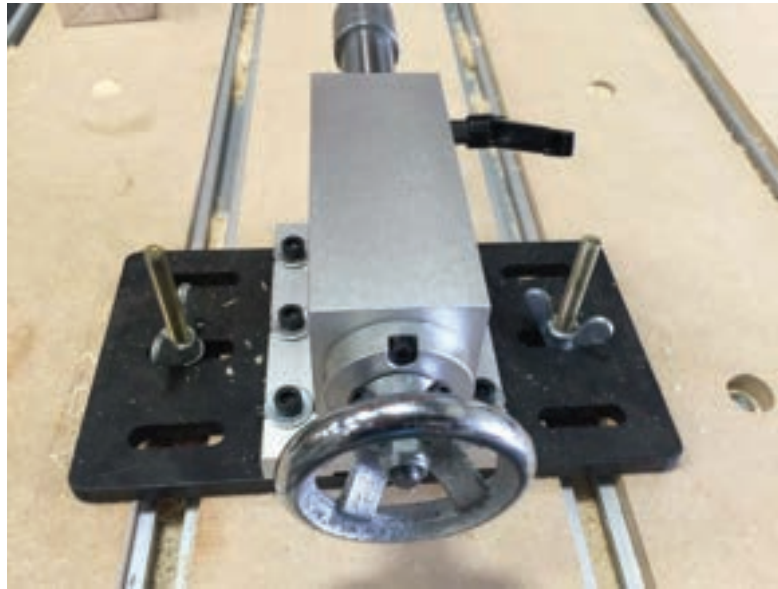


SETTING UP THE TURNING UNIT ON THE BED

USING THE SUPPLIED T-BOLTS THAT CAME WITH THE MACHINE
INSERT THEM INTO THE TEESLOTS ON THE CNC ONCE THEY ARE IN
PLACE LAY THE TAIL STOCK OVER THEM



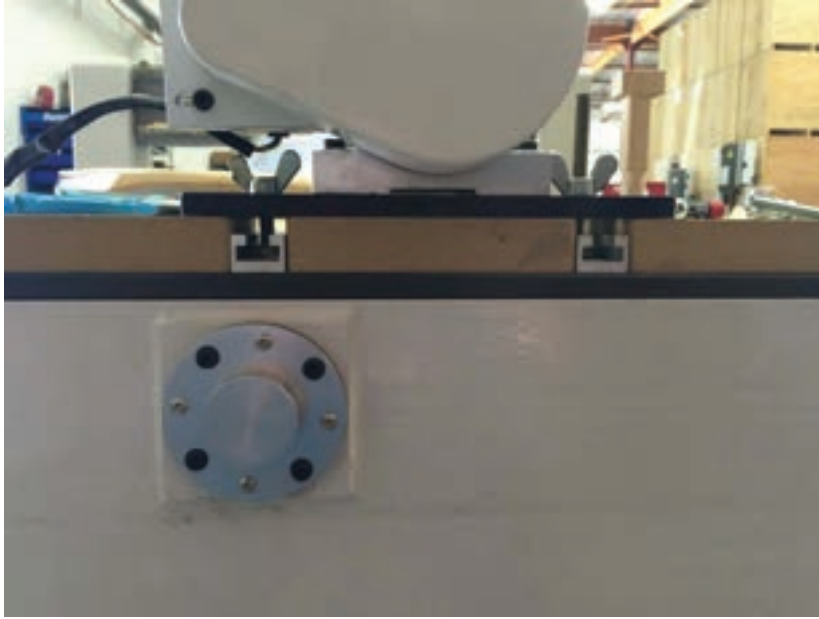
USE THE WING NUTS TO SECURE THE TAIL STOCK DOWN DO NOT TIGHTEN THEM DOWN YET



DO THE SAME FOR THE HEAD STOCK PLACE YOU TEE NUTS



USE THE WING NUTS TO SECURE THE HEAD STOCK DOWN DO NOT TIGHTEN DOWN YET



NOW THAT THE UNIT IS MOUNTED IT MUST BE ALIGNED TO DO THIS YOU WILL NEED A V BIT
ONCE YOU INSTALL THE BIT POWER UP THE MACHINE JOG IT TOWARDS THE TAIL STOCK

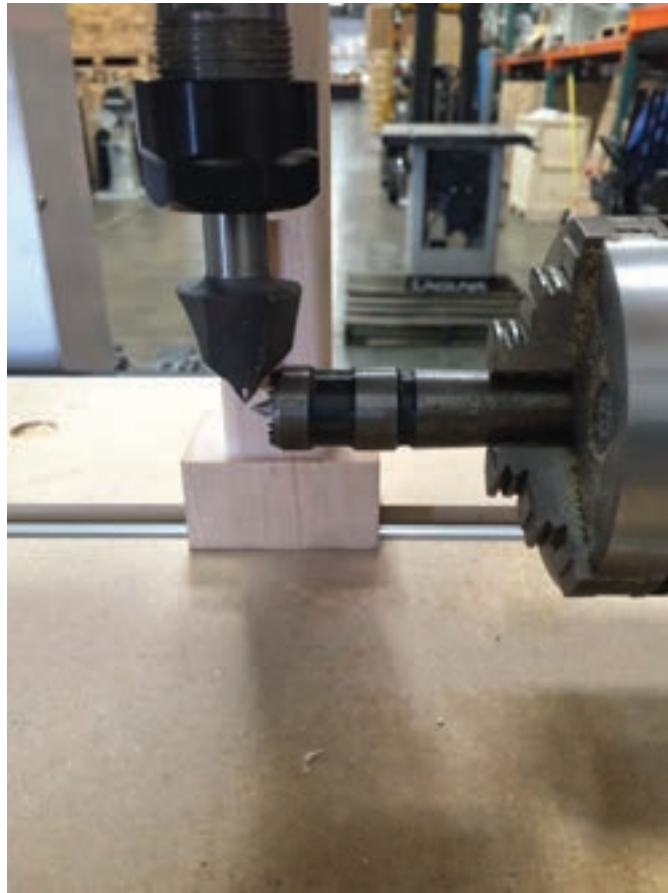


ALIGN SO THAT THE POINTS ARE TOUCHING ONCE THEY ARE SET TIGHTEN DOWN ON THE WING NUTS



NOW JOG THE Y AXIS OVER TOWARDS THE HEAD STOCK YOU WILL NEED TO CHUCK IN A DRIVE SPUR

OR ANOTHER V-BIT NOW DO NOT MOVE THE X AXIS ANYMORE ALL MOVEMENTS MUST BE DONE TO



THE HEAD STOCK

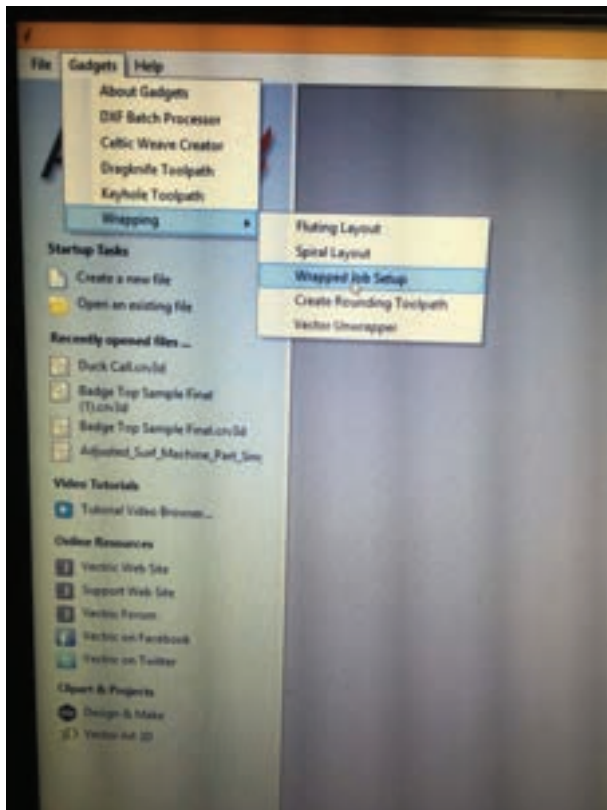
ONCE ALIGNED TIGHTEN DOWN THE WING NUTS, AND NOW THE UNITS SHOULD BE PARALLEL TO THE Y AXIS. NOW THAT THIS IS DONE YOU CAN MAKE A FENCE OR SCRIBE A LINE TO MAKE THIS A FASTER SET UP IN THE FUTURE.

OPERATION AND SOFTWARE SETUP

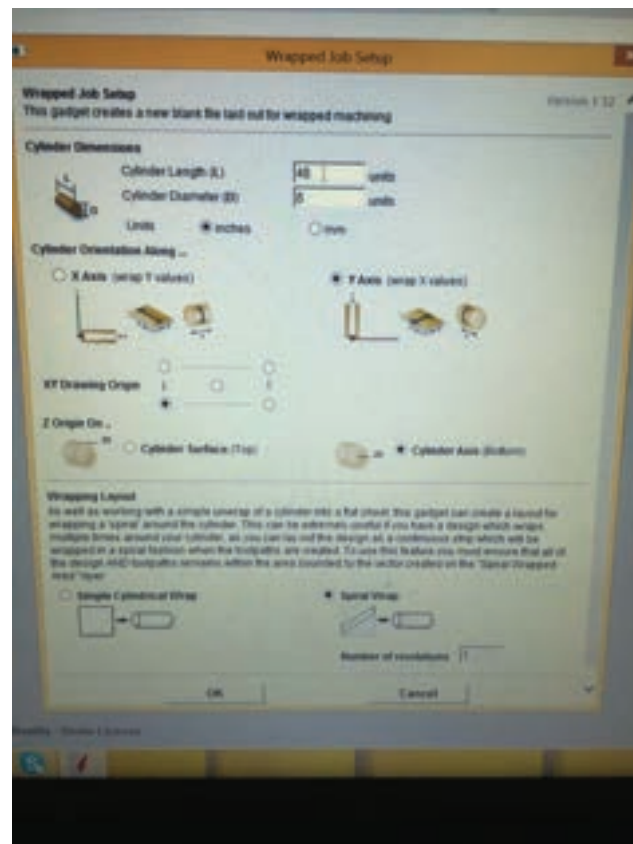
NOW THAT THE MACHINE IS READY TO GO YOU WILL NEED TO WRITE A PROGRAM FOR IT YOU CAN USE VCARVE PRO, ASPIRE AND RHINO IN VCARVE PRO YOU CAN ONLY IMPORT 3D FILES BUT YOU WILL NOT BE ABLE TO DRAW THEM THIS IS A BASIC SOFTWARE TO GET YOU CUTTING PARTS. TO DESIGN YOUR OWN PARTS YOU WILL NEED TO GO UP TO ASPIRE OR RHINO , THE RHINO SOFTWARE WILL GIVE YOU

FULL USE OF THE 4 AXIS CAPABILITIES BUT IT REQUIRES MORE SOFTWARE KNOWLEDGE. THE EXAMPLE BELOW WAS MADE USING ASPIRE.

START OUT BY SELECTING WRAPPED JOB SETUP UNDER GADGETS

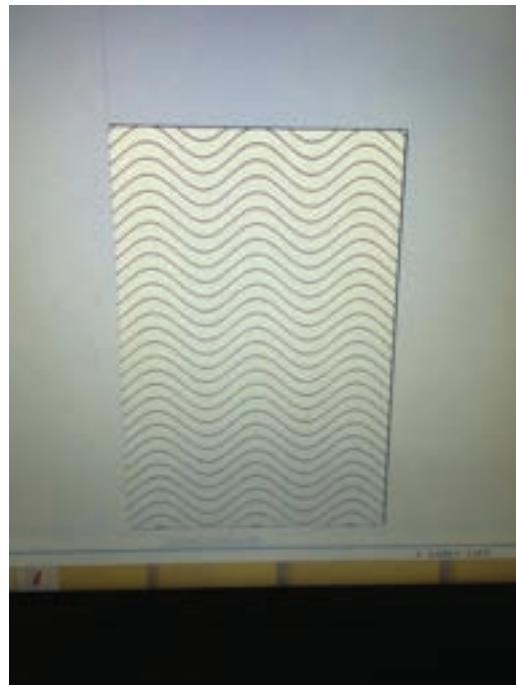
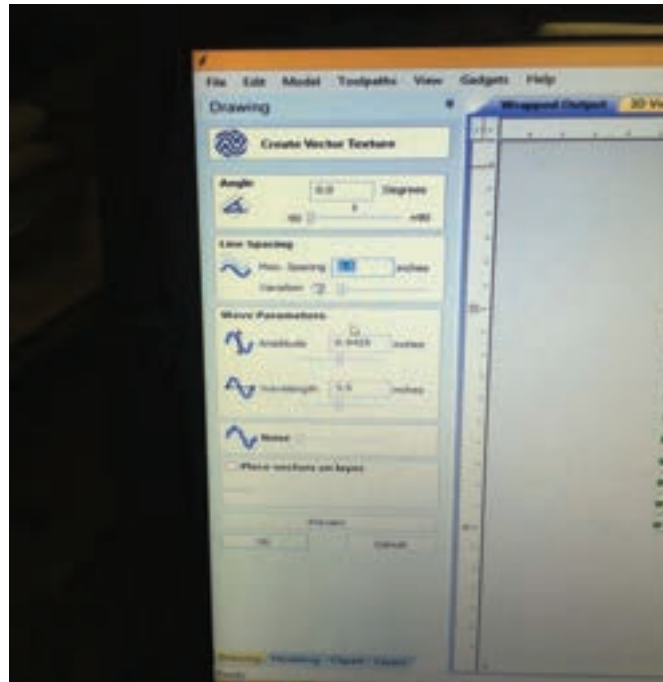


ONCE YOU CLICK THAT A WINDOW WILL POP UP ASKING FOR THE INFORMATION OF THE SIZE AND DIAMETER YOU WILL BE CUTTING YOU WILL ALSO HAVE TO TELL IT WHERE ORIGIN AND Z ZERO WILL BE SET TO



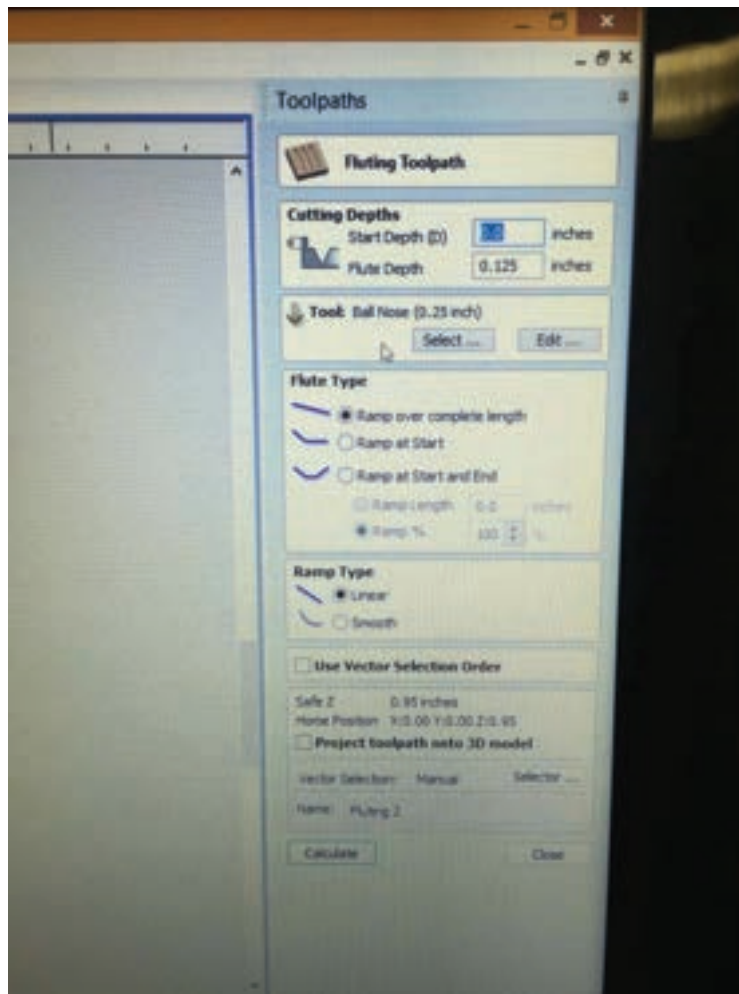
FOR BEST RESULTS SELECT THE CYLINDER AXIS (Bottom).THE CYLINDER ORIENTATION SHOULD BE Y AXIS
THIS WILL WRAP THE MATERIAL AROUND THE X AXIS

ONCE YOU PRESS OKAY THE JOB SET UP WILL NOW SHOW UP NOW YOU CAN DRAW YOUR OBJECT, FOR
THIS JOB WE WILL CREATE A VECTOR TEXTURE FILE. SELECT THE ICON AND INPUT YOUR INFORMATION



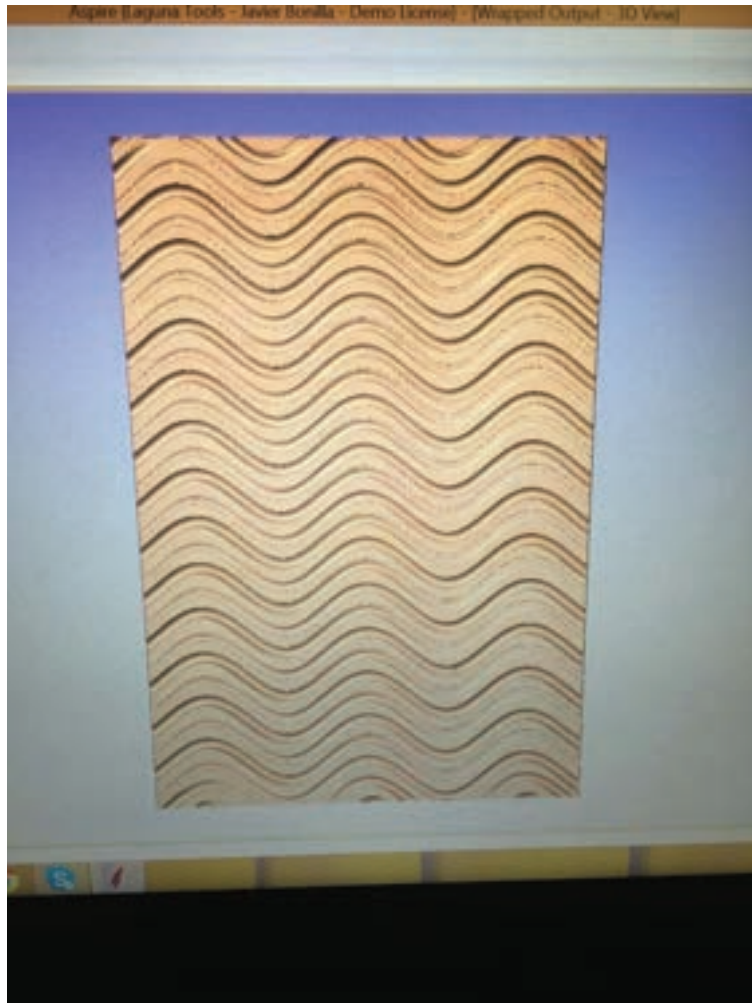
ONCE DONE YOU OBJECT WILL LIKE THE PICTURE ON THE RIGHT NOW REMEMBER THIS WILL BE A CYLINDER NOT A FLAT PIECE THE SOFTWARE SHOWS IT FLAT FOR DRAWING REASONS ONLY IF YOU WOULD LIKE TO WORK ON A ROUND STOCK THEN RHINO WILL BE REQUIRED.

THE TOOLPATH WE WILL SELECT FOR OPERATION WILL BE FLUTING TOOL PATH THIS WILL GIVE TEXTURE TO THE CYLINDER



INPUT DEPTH OF CUT AND SELECT YOUR BIT START DEPTH SHOULD ALWAYS BE 0 SINCE YOU ARE STARTING TO CUT FROM ABOVE PRESS CALCULATE AND THE SCREEN SHOULD CHANGE TO VIEW THE TOOL PATH

THE PREVIEW TOOLPATH SCREEN WILL SHOW YOU THE ACTIVE TOOLPATH YOU CAN SIMULATE IT OR JUST SAVE IT TO CUT ON THE MACHINE

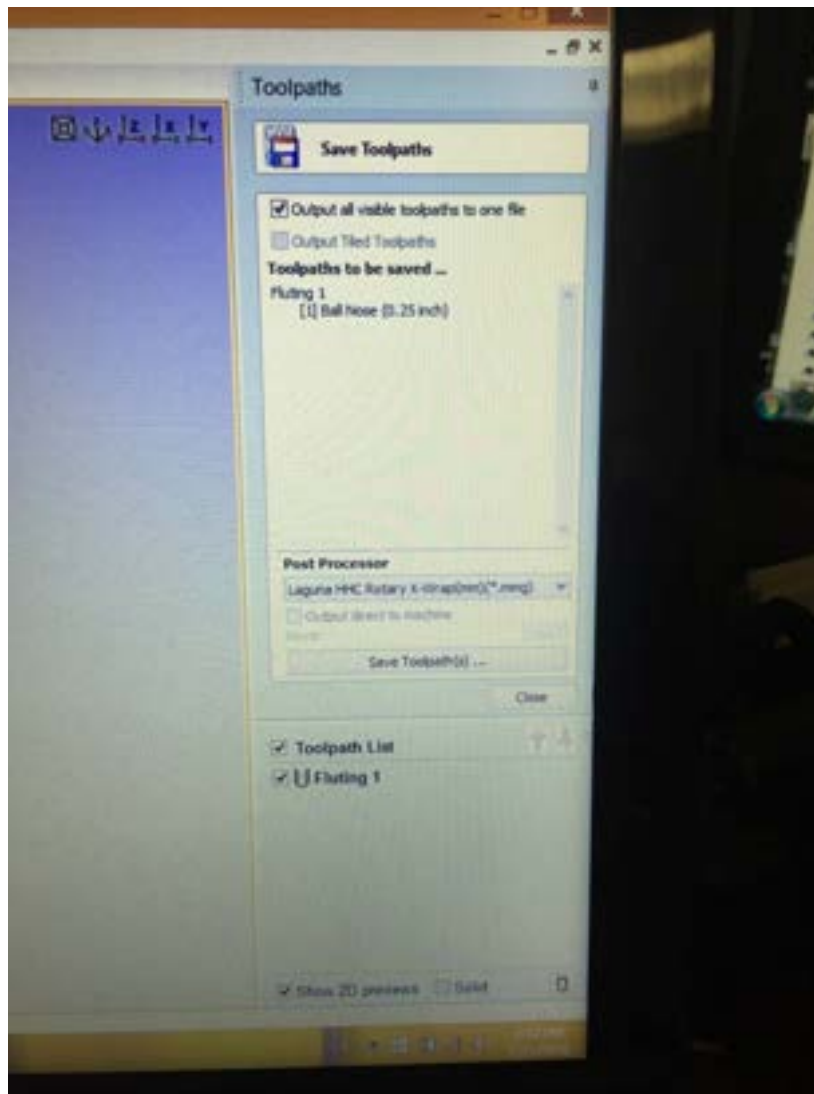


TO SAVE THE FILE IN GCODE FORMAT SELECT THE BLUE FLOPPY DISK ON THE LAST ROW OF TOOLPATH OPERATIONS WHEN YOU PRESS THAT IT WILL BRING UP THE SAVE TOOLPATHS SCREEN

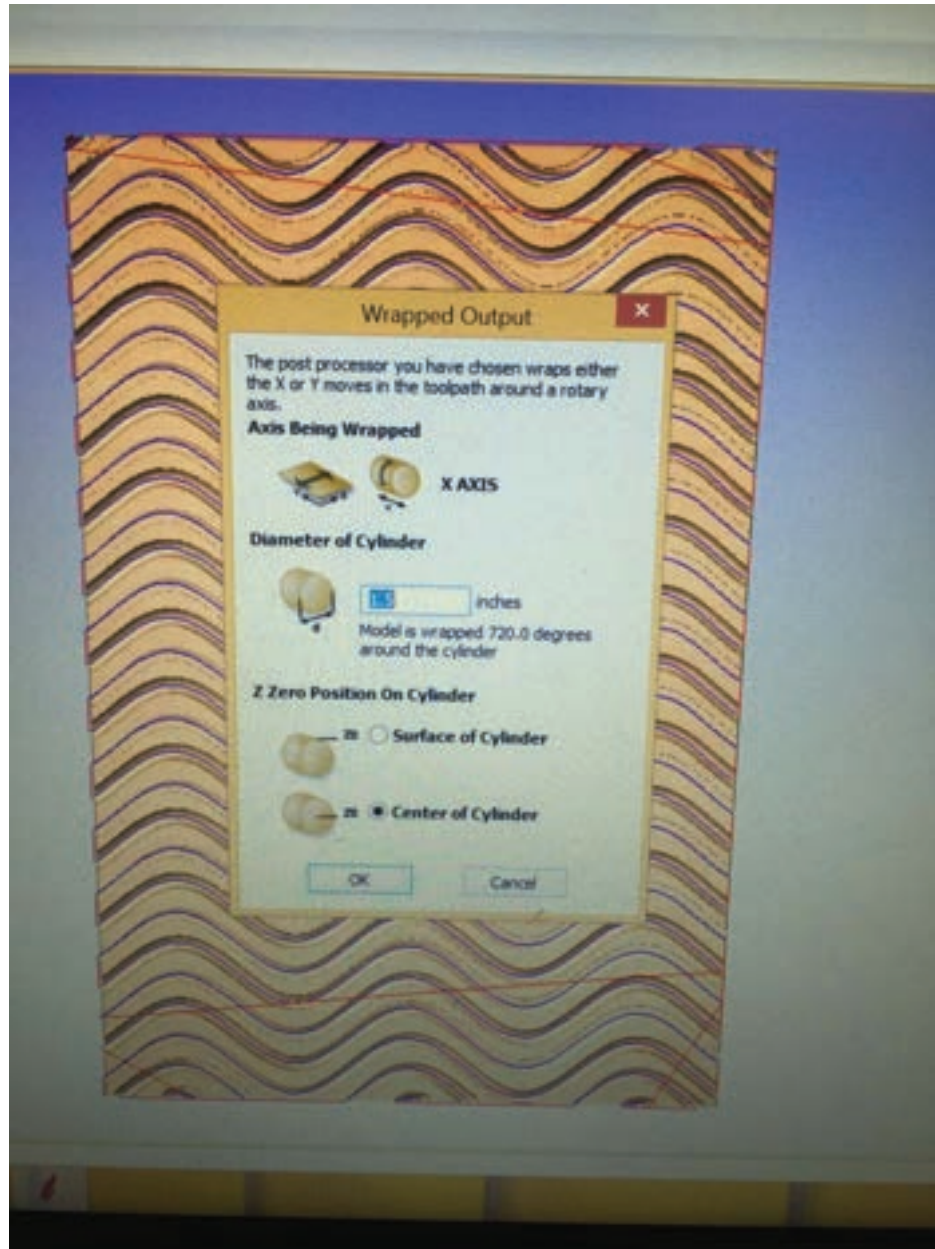
SELECT THE TOOLPATH YOU WANT TO SAVE IT WILL SHOW THE TOOLPATH YOU ARE SAVING WITH A CHECK MARK NEXT TO IT MAKE SURE YOU SELECT THE CORRECT POST FOR THE MACHINE

FOR VCARVE AND ASPIRE YOU CAN SELECT LAGUNA HHC ROTARY X-WRAP(MM)(*MMG)

OR LAGUNA HHC ROTARY Y-WRAP(MM)(*MMG) IF YOU HAVE YOUR TURNING UNIT RUNNING ALONG THE Y AXIS YOU WOULD SELECT X WRAP. IF THE TURNING UNIT IS ALONG THE X YOU WOULD SELECT Y WRAP. FOR THIS PROGRAM WE WILL USE X-WRAP



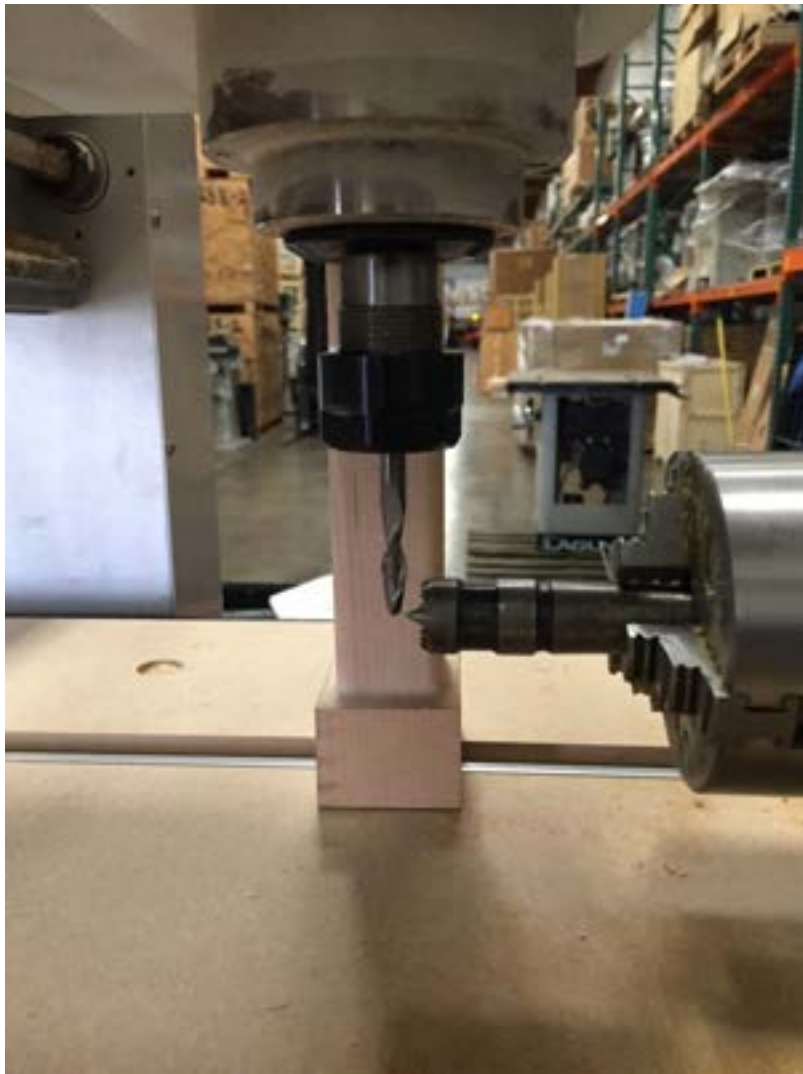
WHEN YOU HAVE SELECTED THE CORRECT POST PRESS SAVE TOOLPATH YOU WILL HAVE A WINDOW THAT POPS UP WITH WRAPPED OUTPUT THE NUMBERS SHOULD BE THE SAME AS WHEN YOU STARTED YOU THE WRAPPED JOB SETUP IF THEY ARE DIFFERENT CHANGE THEM ONCE DONE JUST PRESS OK



SAVE THE FILE TO A USB STICK AND BRING IT OUT TO THE MACHINE

SETTING UP MACHINE TO RUN THE FILE

NOW THAT YOU HAVE A FILE READY TO GO YOU NEED TO SET UP YOUR WORK PIECE START BY HOMING YOUR MACHINE ONCE THAT IS DONE INSERT THE BIT THAT YOU WILL USE. THEN JOG THE MACHINE OVER TO THE CENTER OF THE HEAD STOCK THIS WILL BE YOUR Z ZERO



TO SAVE THIS POSTION YOU MUST PRESS AND HOLD THE ON/OFF BUTTON THEN PRESS THE 8 BUTTON THEN RELEASE AT THE SAME TIME. YOU WILL GET A WINDOW ASKING WHAT AXIS YOU WANT TO RESET SELCET CLEAR Z.



THE Z AXIS SHOULD NOW DISPLAY ZERO

NOW LOAD YOUR STOCK ONTO THE MACHINE ONCE IT IS LOADED YOU WILL NEED TO JOG THE MACHINE TO THE START POINT YOU CHOSE IN THE SOFTWARE FOR OUR CASE IT IS FRONT CENTER



ONCE IN POSITION YOU NEED TO SAVE THE X AND Y LOCATION TO SAVE IT PRESS AND HOLD THE ON/OFF BUTTON THEN PRESS THE 4 BUTTON AND RELEASE AT THE SAME TIME THIS WILL ZERO THE X AND Y AXIS ON THE SCREEN



NOW YOU WILL NEED TO SET THE ZERO FOR THE A AXIS TO SAVE THIS POSTION YOU MUST PRESS AND HOLD THE ON/OFF BUTTON THEN PRESS THE 8 BUTTON THEN RELEASE AT THE SAME TIME. YOU WILL GET A WINDOW ASKING WHAT AXIS YOU WANT TO RESET SELCET CLEAR A.



ONCE YOU CLEAR IT THE DISPLAY WILL ZERO OUT YOU ARE NOW READY TO RUN A PROGRAM MAKE SURE YOU SPINDLE RPM IS SET AND WATER PUMP IS ON.

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