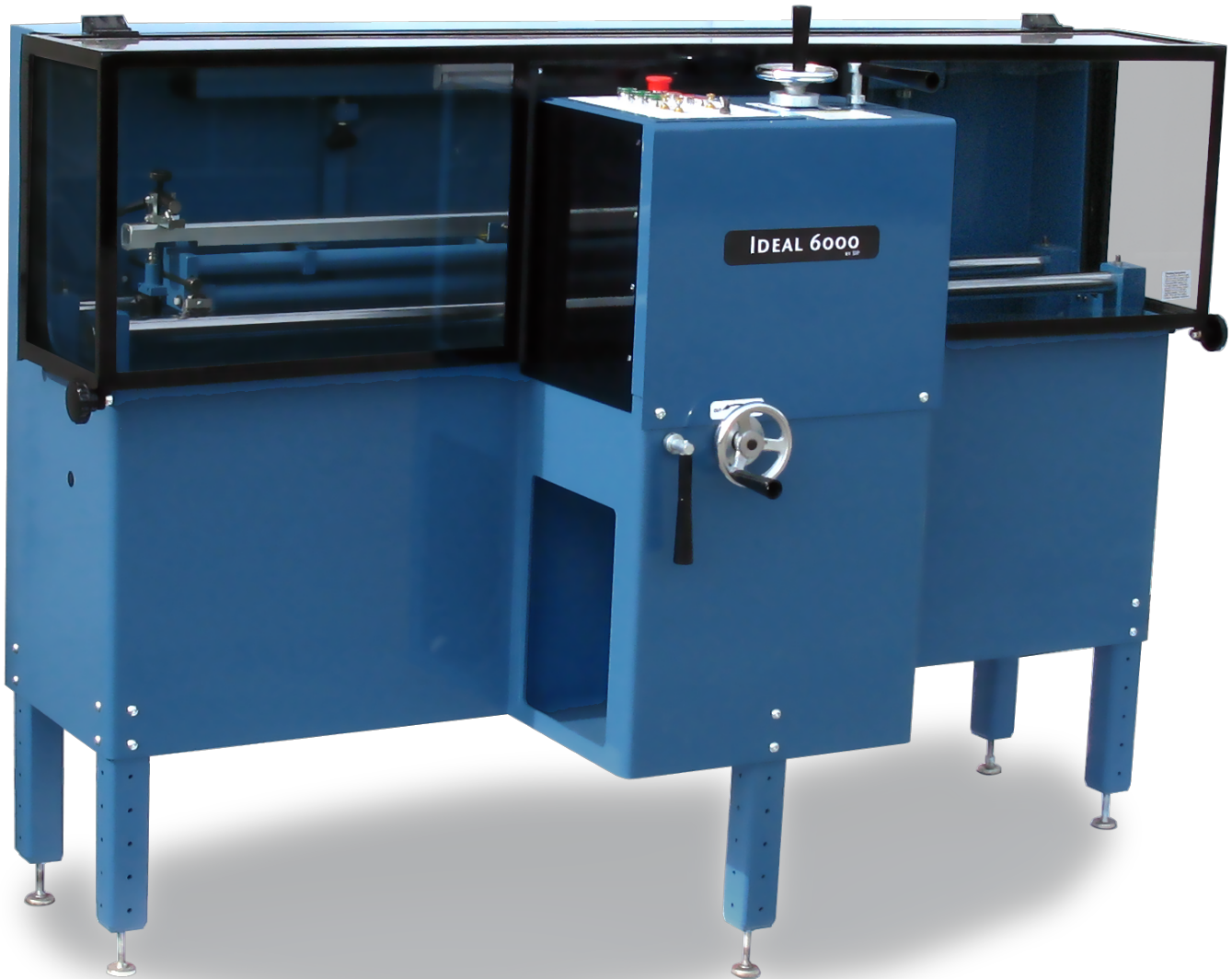




SIMPLEX IDEAL PEERLESS



Ideal 6000 Automatic Bed Knife Grinder Operating Manual

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1.0 Introduction

Thank you for selecting the Simplex•Ideal•Peerless Bed Knife Grinder. The Ideal Grinder is designed and built from top quality materials and components by people who care, and it will give you decades of service.

1.1 Safety guidelines

The following are general safety guidelines. Please read and understand these guidelines before proceeding. As is the case with most machinery, failure to operate it in a safe manner may result in damage, injury or loss of life. Please be careful.

1. Always close shield or wear safety glasses and face shield when grinding!
2. Keep all guards in place and functioning.
3. Do not wear any loose clothing or jewelry which may get caught in the machinery. Secure long hair.
4. Keep your work area clean and organized.
5. Set up the work properly, using the correct tools and fixtures. Ensure that work is securely clamped.
6. Use the wrenches provided when changing the grinding stone and always ensure that the nut is tight.
7. Do not overtightening as that may damage the grinding stone.
8. Always replace damaged grinding stone.
9. Never leave grinder running while unattended.

1.2 Safety notices

In addition to the safety guidelines just listed, there are safety notices through out this manual which are denoted as follows:

An Information Notice provides information or a caution where minor damage may occur.

INFO-Running the spin motor too fast may damage the indexer.

A Warning Notice indicates a situation which could cause severe damage, serious injury or death.

WARNING-Always close shield or wear safety glasses and face shield when grinding.

A Danger Notice indicates a very dangerous situation which if continued will cause severe damage, serious injury or death.

DANGER-Do not overtighten the nut as it will cause the grinding stone to explode!

Again, make sure that you read and understand these warnings before proceeding because failure to operate any machinery in a safe manner may result in damage, injury or loss of life.

1.3 Limited One Year Product Warranty

SIP Corporation warrants the grinder against defects in materials and workmanship for one year from date of original purchase. SIP Corporation will, at its option, repair or replace the defective part at no charge provided it is returned during the warranty period, with transportation charges prepaid, to our factory. Proof of purchase may be required.

This warranty is subject to proper use and maintenance in accordance with all instructional material and manuals provided with the grinder.

This warranty does not apply if the product has been damaged by accident, abuse, misuse, or misapplication; if the product has been modified without written permission of SIP Corporation or if the serial number has been removed or defaced.

This warranty applies only to the original purchaser.

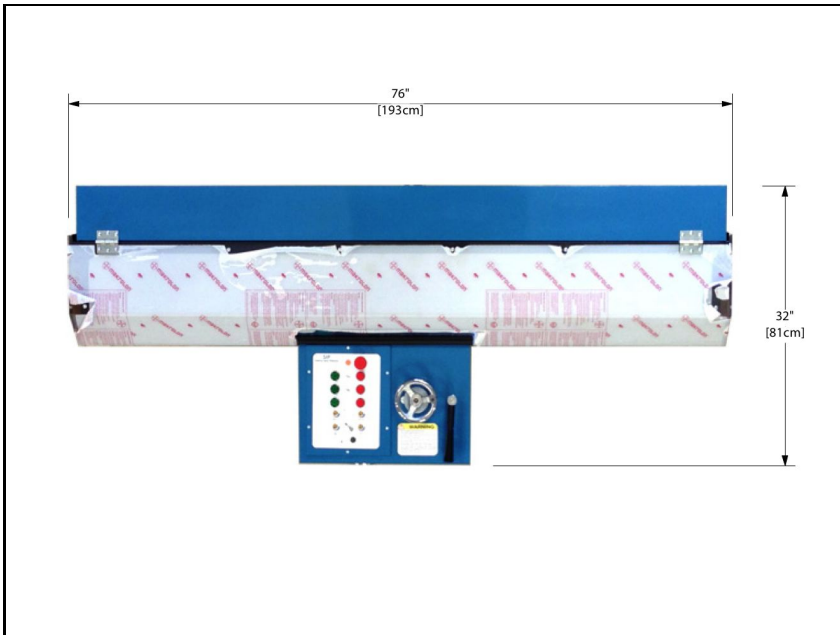
The warranty and remedies set forth above are exclusive in lieu of all others, whether oral or written, expressed or implied. SIP Corporation specifically disclaims any and all implied warranties, including without limitation, warranties of merchantability and fitness for a particular purpose.

No SIP Corporation dealer, agent or employee is authorized to make any modification, extension or addition to this warranty.

SIP Corporation is not responsible for special, incidental, or consequential damages resulting from any breach of warranty, or any other legal theory, including but not limited to lost profits, downtime, or goodwill.

Some states do not allow the exclusion or limitation of incidental or consequential damages or exclusion of implied warranties, so the above limitations or exclusion may not apply. This warranty gives you specific legal right and you may also have other rights that vary from state to state.

You must obtain prior authorization before returning defective parts to SIP Corporation.



2.0 Locating the grinder

Determine where on a concrete slab the Ideal 6000 will be located. Leave 5 inches (13 cm) clearance behind grinder for door opening.

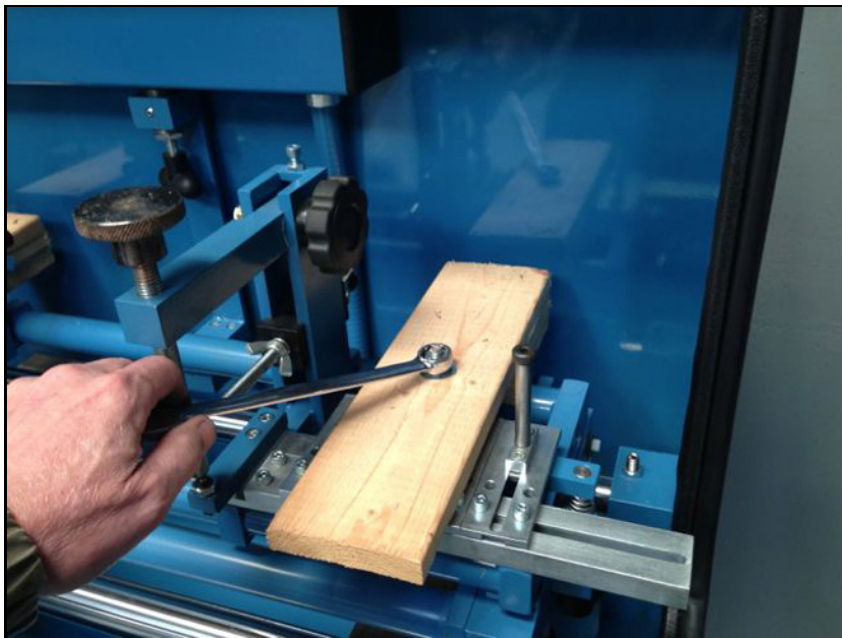
The Ideal 6000 requires standard 110 volt, 60 Hz, single phase service. Foreign versions with 200 volt, 50 Hz, single phase are available. The grinder comes with an 8 foot grounded cord for 110 volt service. The grinder also requires about 70 psi clean compressed air.



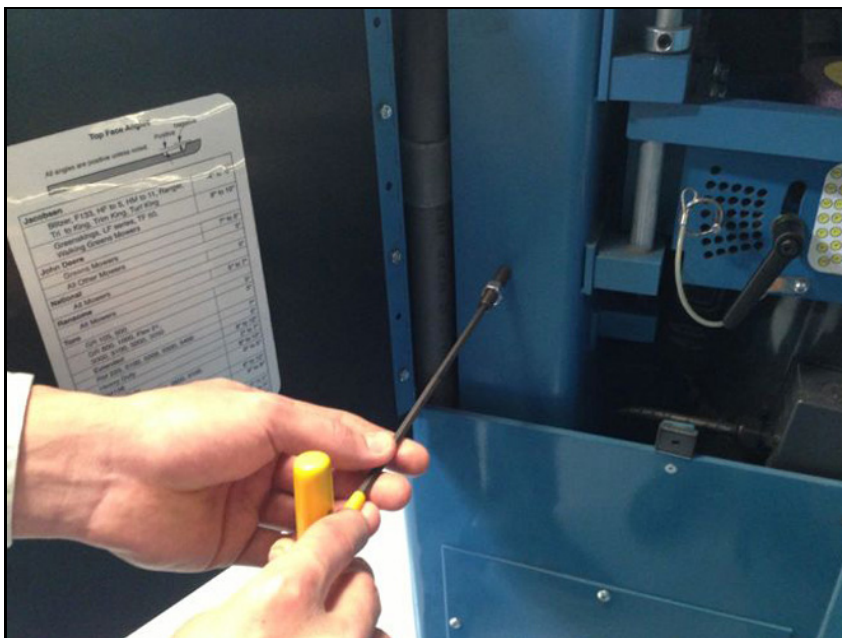
2.1 Unpacking the grinder

Before unpacking, examine carefully for any shipping damage. Any damage should be reported immediately to the carrier.

By now you have removed the plastic wrap from the main crate. After removing the box of accessories and any other optional equipment, unbolt the grinder from the pallet and place it in the location you have selected.



Unbolt and remove the wooden supports that clamp the carriage and track shafts.



Open the right side door and remove the set screw that secures the vertical head counter weight.



Feed the top face down about two thirds of its travel and...



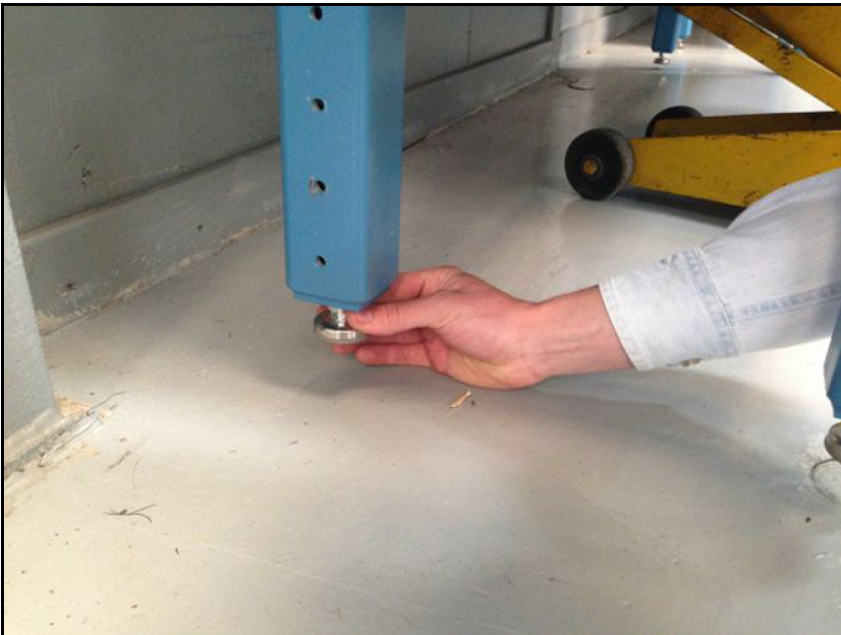
...from the left access door, remove three pieces of wood which supported the counterweight.



2.2 Leveling the base

To adjust the height of the grinder, carefully lift the grinder with a jack, lift table or fork lift. Make sure you support the center of the grinder when lifting or moving it. Remove the four bolts which hold each leg and adjust the leg to the desired height. Reinstall the four bolts in each leg.

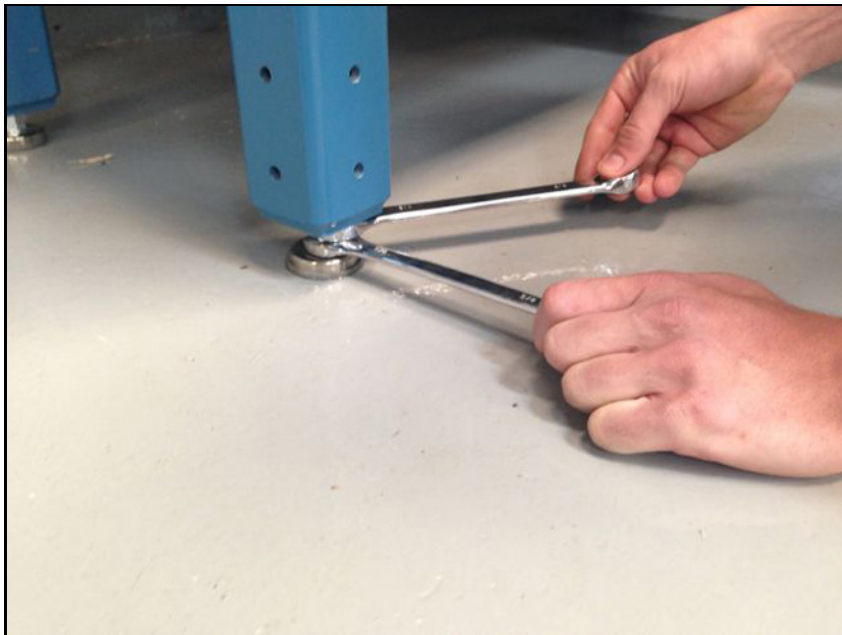
WARNING-Use caution when lifting the grinder.
It can be top heavy and front heavy.



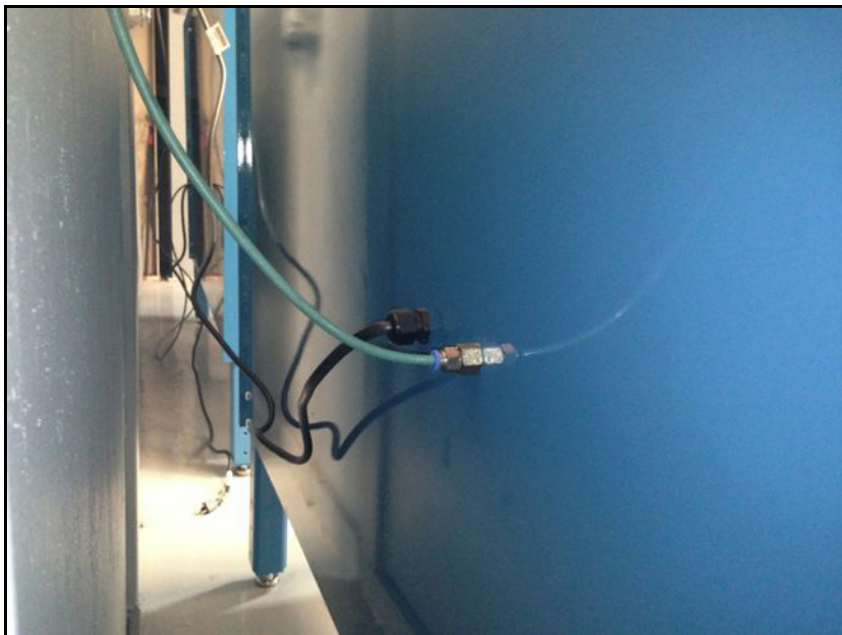
Mount the leveling pads provided in to the five legs of the grinder.



Lower the grinder in its final location. Check the grinder for level using a good quality level.



Adjust the leveling pads until grinder is level then lock the foot pad using the jam nut.



2.3 Connecting the service

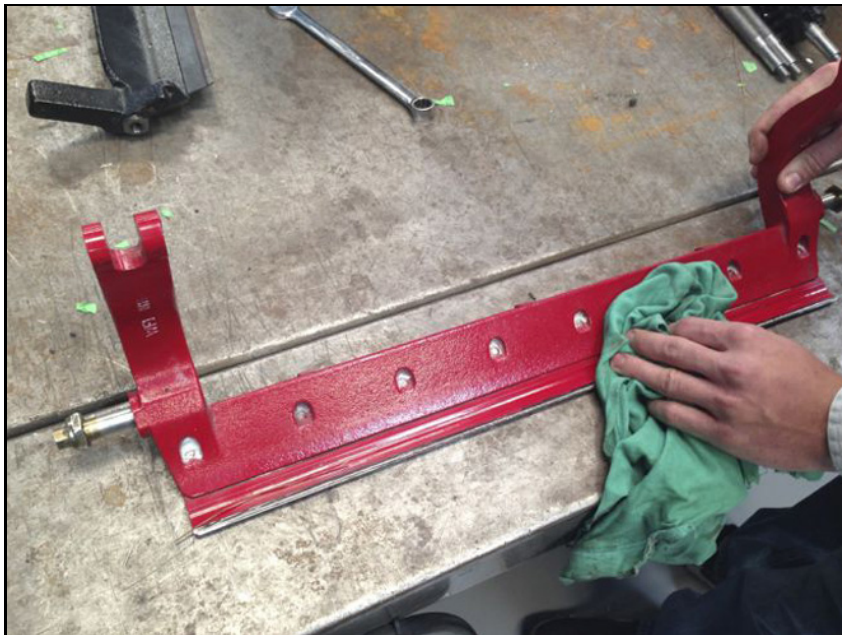
Connect the air supply to the fitting on the back center of the grinder.



Set the pressure gauge to 60 psi.



Plug the electrical cord into a 110 volt outlet.



3.0 Preparing the bed knife for grinding

Clean all dirt, grass, rust, grease, and oil from the mower assembly, especially where it accumulates behind the lip of the bed knife.

Inspect for a wavy appearance or condition along the top face of the bed knife. This would indicate that the bed knife has been adjusted to the reel with excessive pressure. This could cause worn or loose reel bearings.



3.1 Control panel

Emergency stop button controls the main power and will shut all power off.



The top face grinding motor on and off buttons.



The front face grinding motor on and off buttons.



Carriage travel on-off. The carriage travel operates with air. This also turns the coolant mist on and off.



This controls the carriage speed. This is a needle valve which lets air bleed from the cylinder. Opening the valve counter clockwise increases the speed. Closing the valve clockwise decreases the speed.



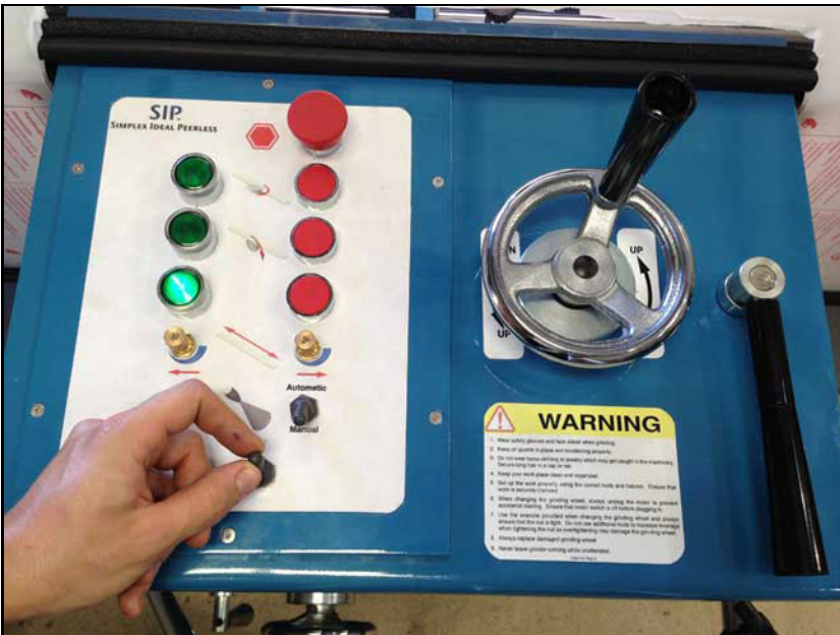
This will temporarily turn on the the coolant mist so that you may adjust the coolant at the nozzle.



This controls the air flow for the coolant mist. The coolant mist comes on when the carriage travel is turned on. If you want to operate the carriage without the coolant, close the valve to turn it off.



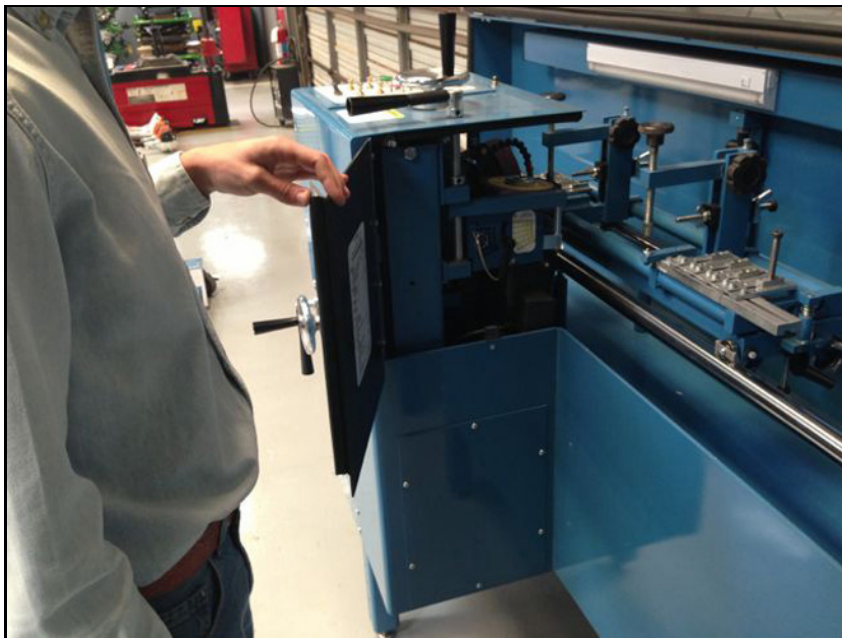
You can adjust the coolant flow by rotating the nozzle.



This turns the internal light on and off.



3.2 Setting the top face relief angle
Open the hood.



Open the right access door.



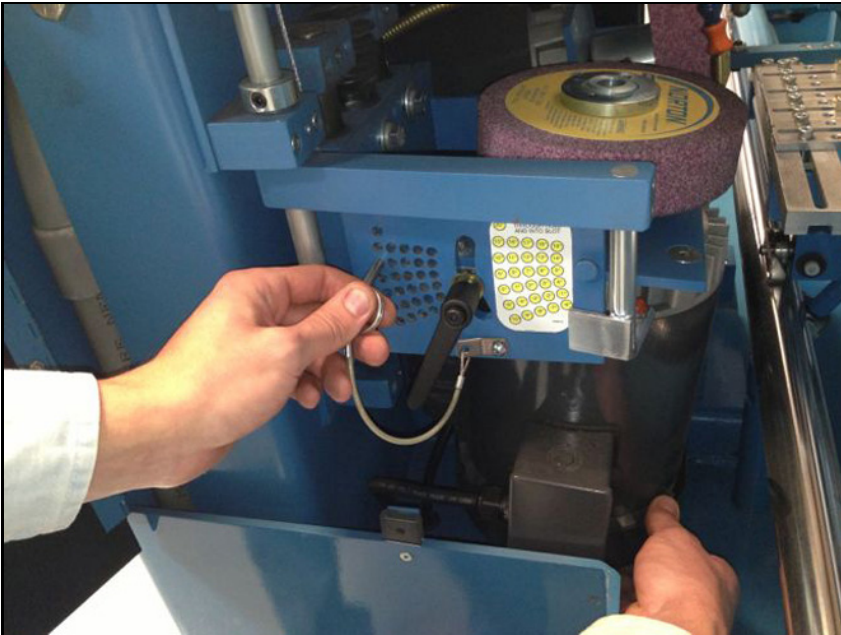
There is a table of popular model bed knife top face angles.



Unclamp the grinding head.

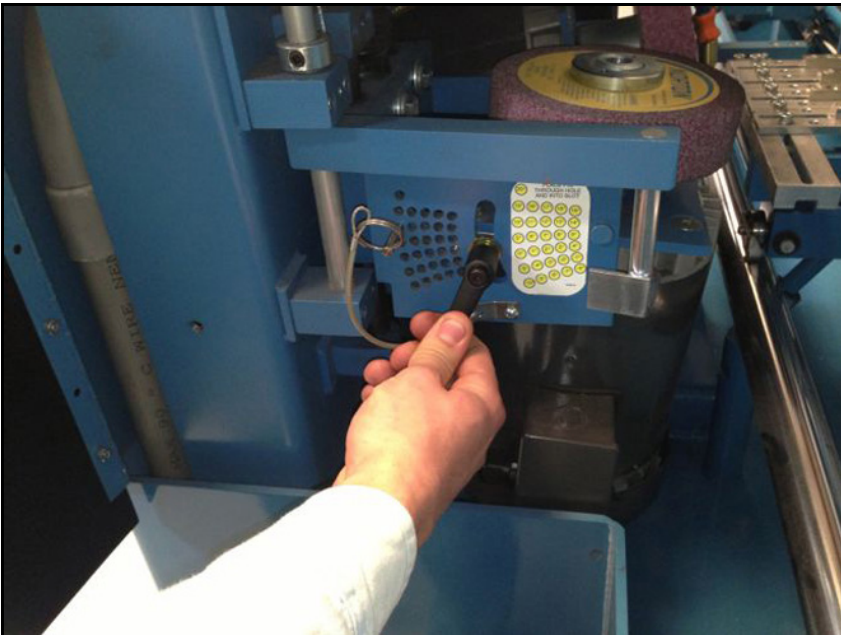


Remove the positioning pin.

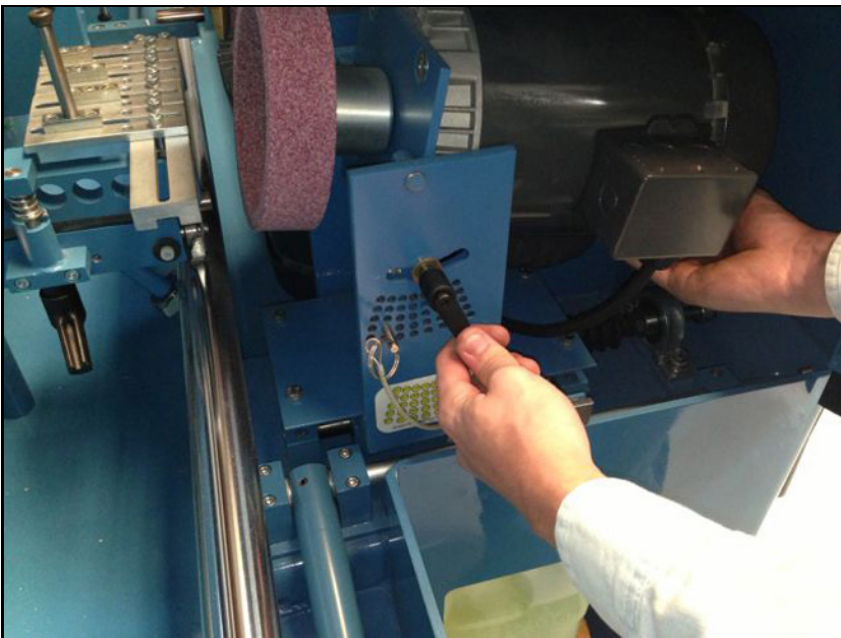


Using the chart, determine which hole will be used for the desired relief angle. Move the head so that the pin goes through the desired hole and into the slot attached to the motor.

INFO-You must make sure the pin goes into the slot for the correct angle.



Reclamp the grinding head.



Reclamp the grinding head.

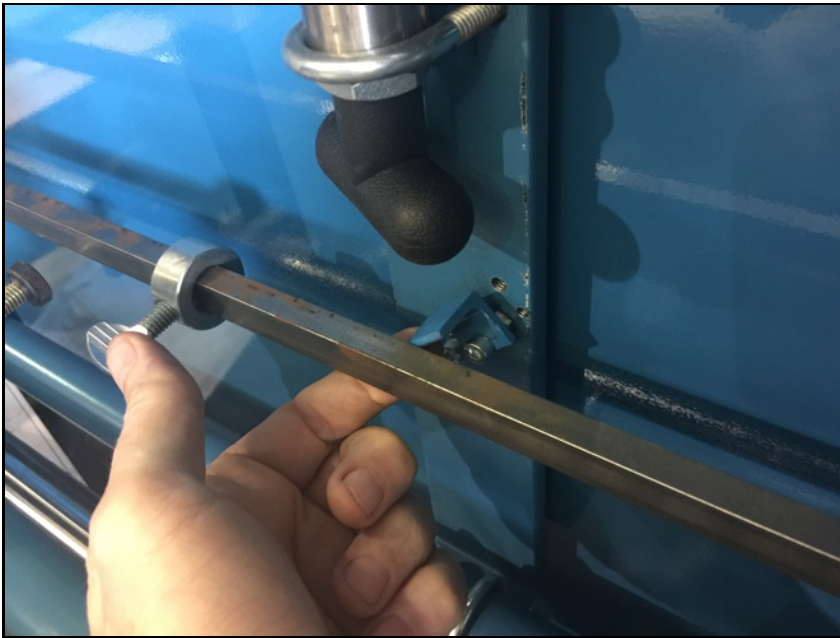


3.4 Carriage travel

The carriage may be disengaged from the drive cylinder for easier set up by pulling down and turning the latch pin. To re-engage the drive cylinder, turn the latch pin until it pops up, when the cylinder and carriage are lined up, the pin will automatically snap into the cylinder.



The travel stops are set by loosening the thumb screw, positioning the stop and retightening the thumb screw.



You can bypass the stops by flipping the stop bracket.



3.5 Loading the bed knife

Unscrew the clamp arm knob until the arm is out of the slot.

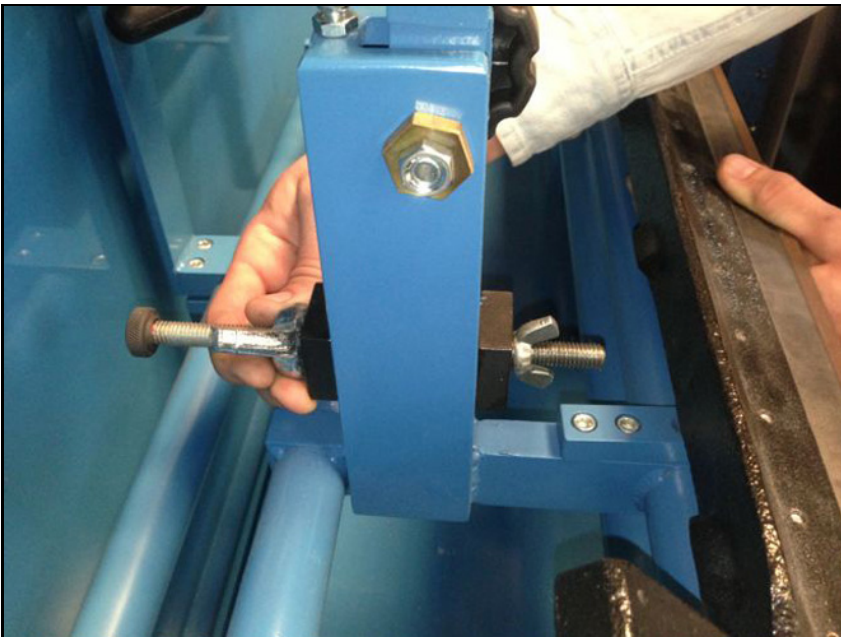


Swing the arm up.

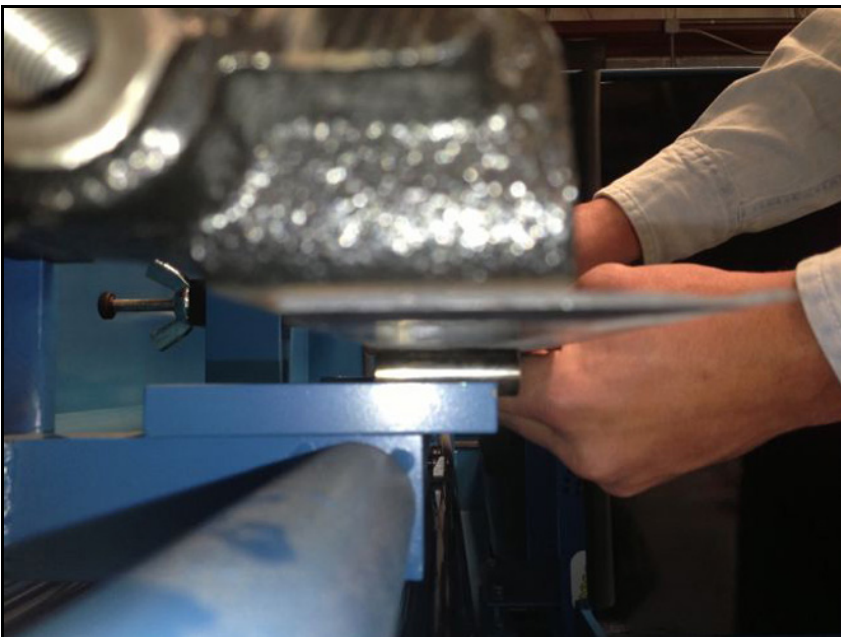


Place the bed knife on the supports.

INFO-You only need to make these adjustments for the first bed knife of a group of similar bed knives.



Unclamp the rear support and position it to a suitable height on the back of the bed knife and reclamp.

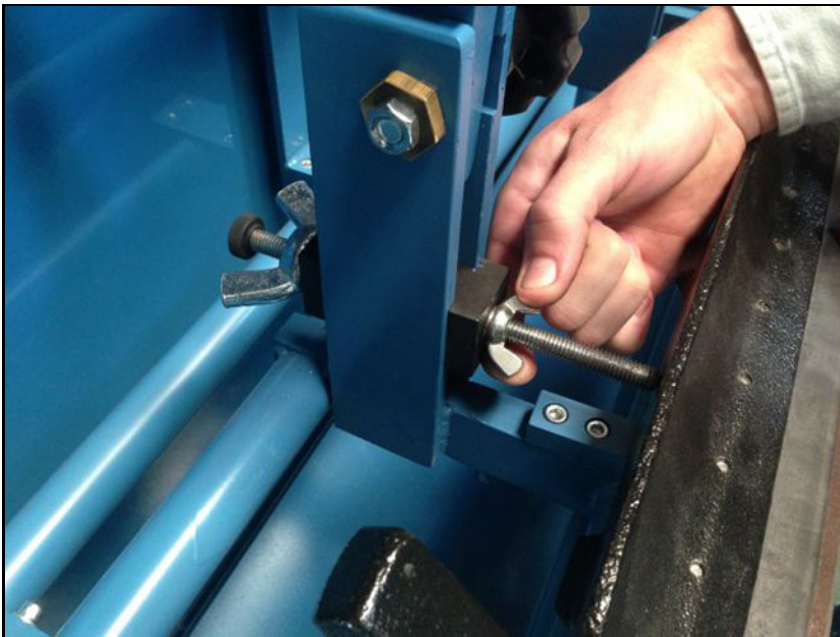


Make sure that the rear flat of the bed knife is resting on the shaft and the ball and not on any screw heads.

INFO-Make sure that the bed knife is not resting on any screw heads.



Adjust the rear support to get the front edge of the bed knife close to even. You will make the final adjustment on this later.



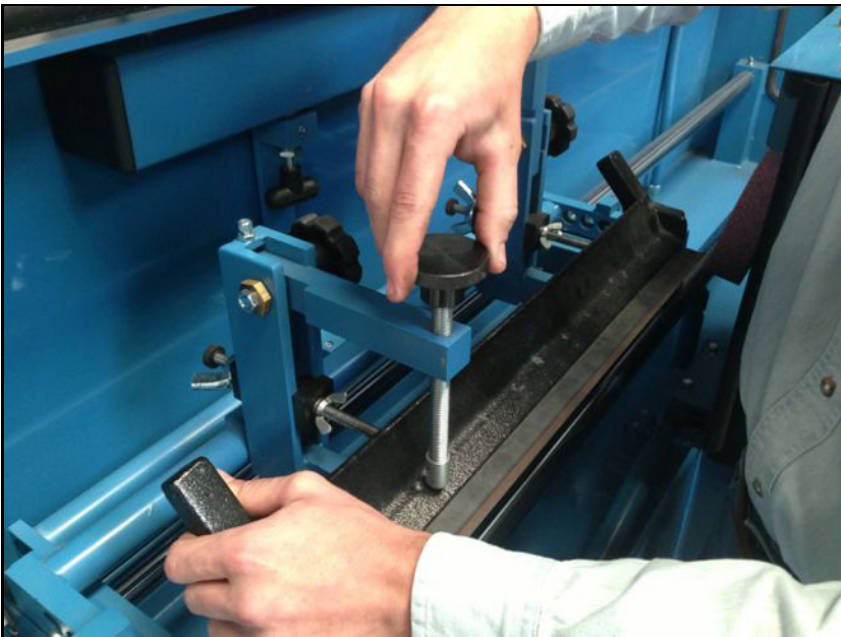
Relock the back support.



Swing the arms down on to bed knife.



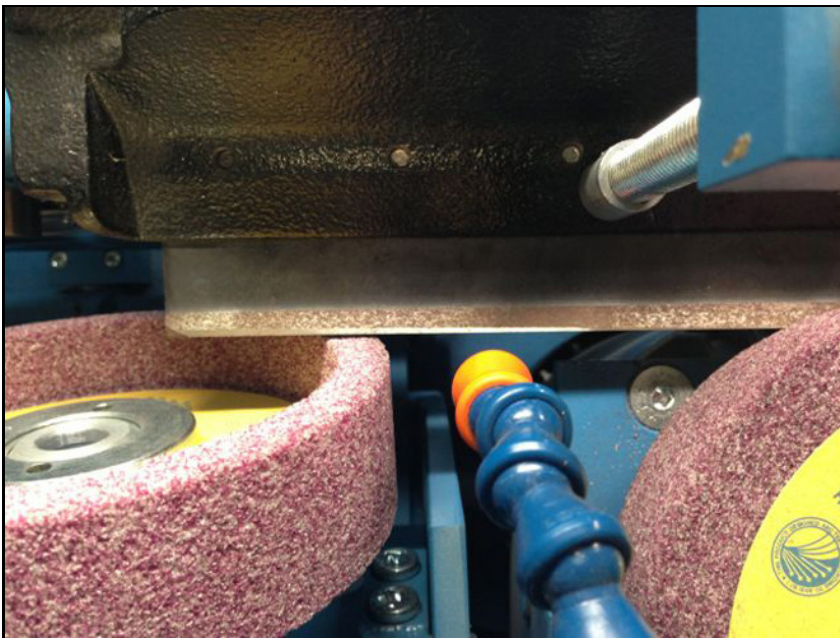
Lock the arms in the slots. Make sure the clamp screw is not tight on the bed knife.



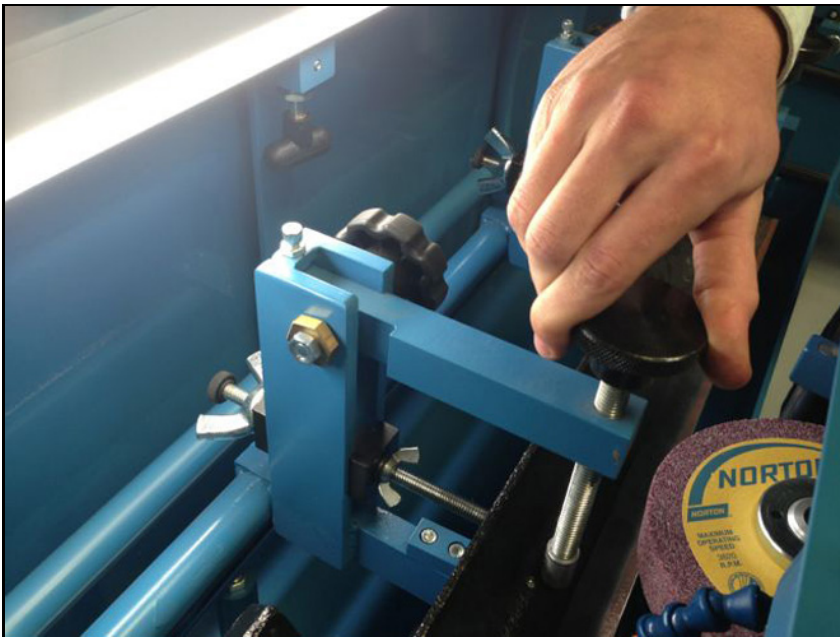
Tighten the bed knife clamp. Do not overtighten.



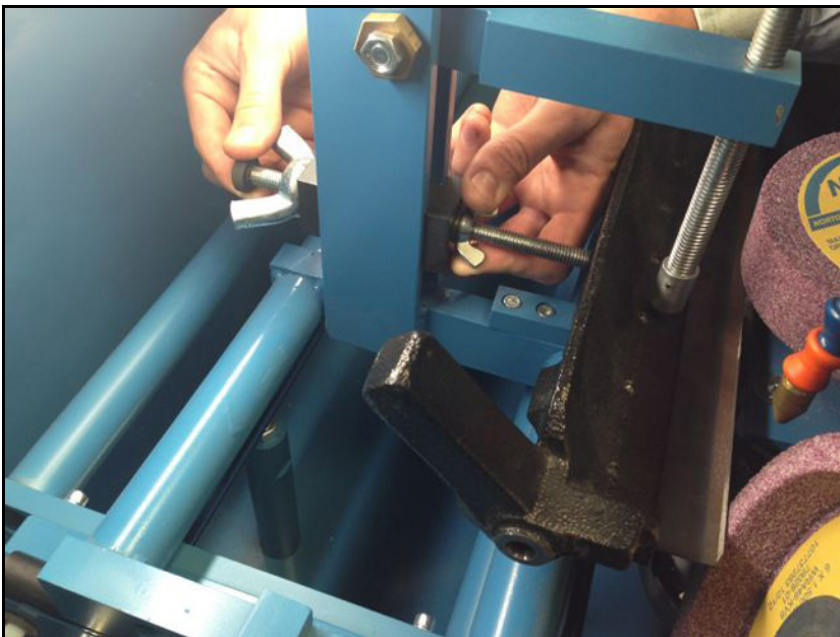
In-feed the front grinding wheel...



...until it just touches the bed knife at the closest point.



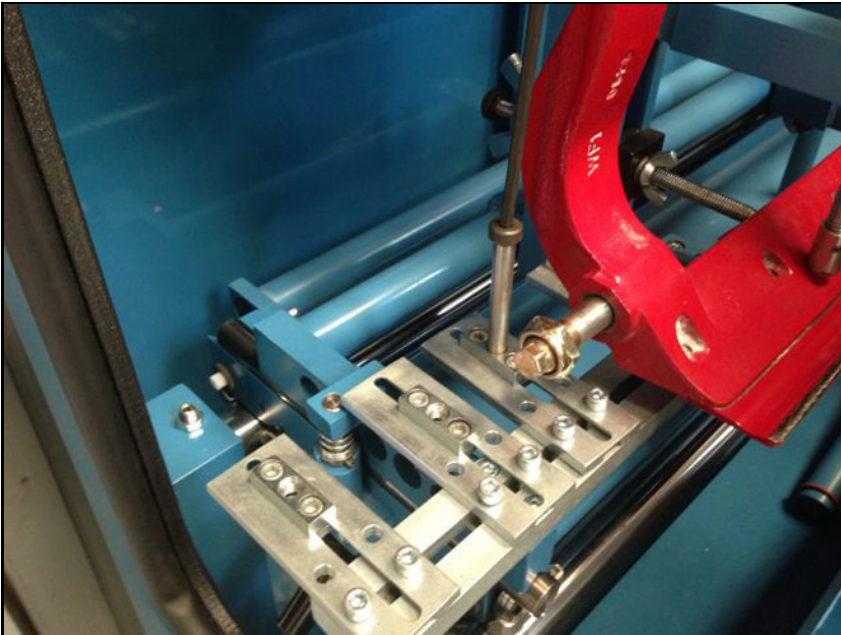
Loosen the clamp on the end where there is a gap.



Loosen wing nut then adjust back stop until the bed knife just touches the grinding wheel evenly all the way across, then retighten the wing nut.

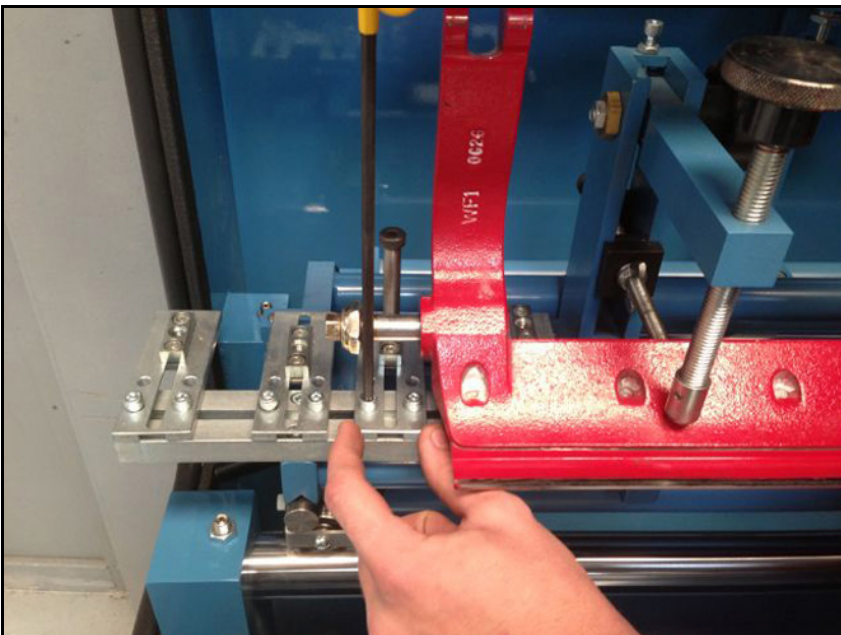


Retighten the clamp.

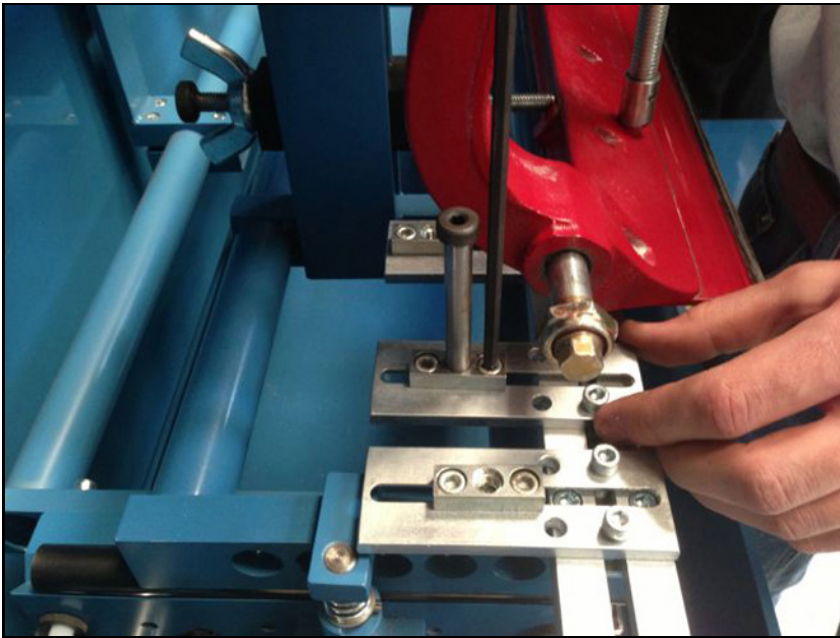


3.6 Initial set up of Pin Alignment Kit

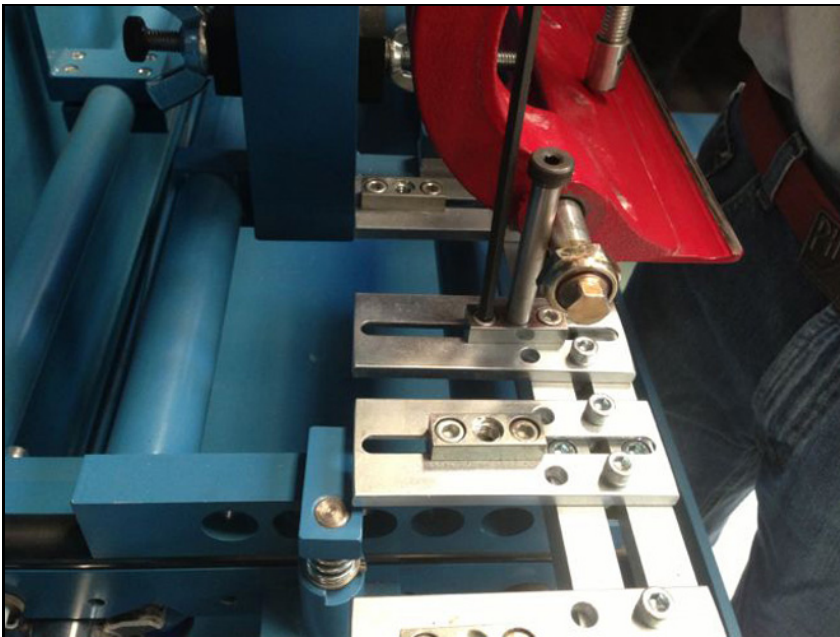
Take one of each type of bed knife that you have and install the pivot bolts until they seat. Mount the first bed knife as described in Section 3.5. Install the alignment pin into one pair of the slide nuts.



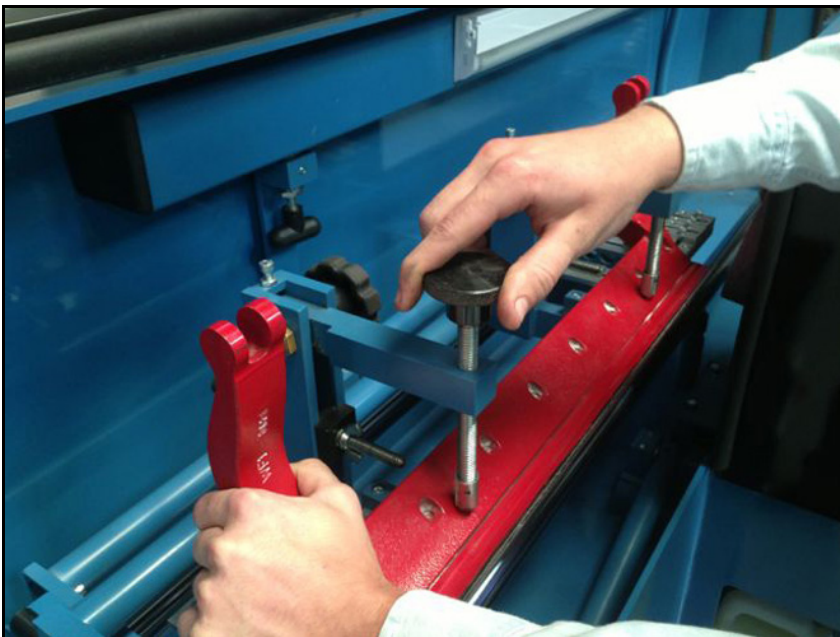
Loosen the bolts on the left to right slides and position the pins behind the pivot bolts on both ends. Retighten the bolts.



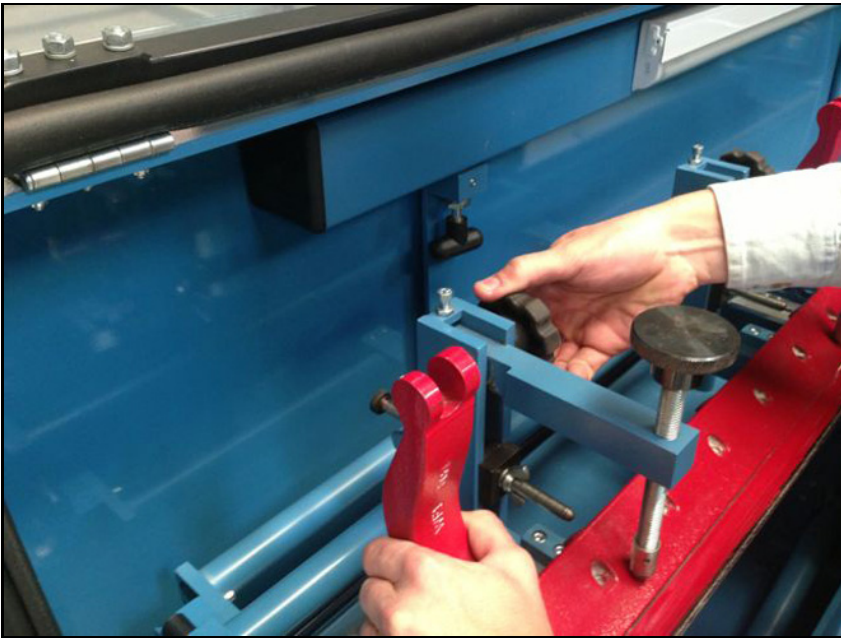
Loosen the bolts on the pin nuts and...



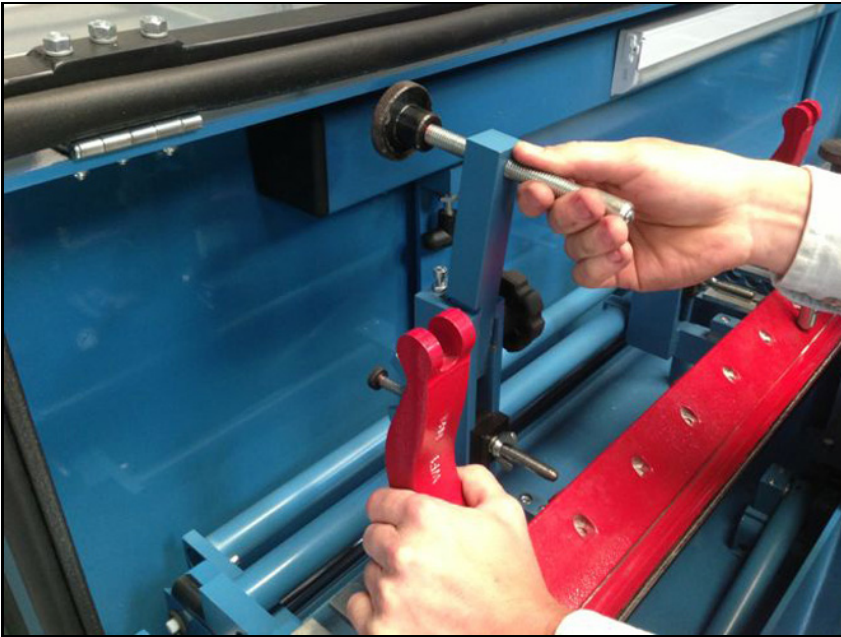
... position the pins against the back of the pivot bolts. Retighten the bolts.



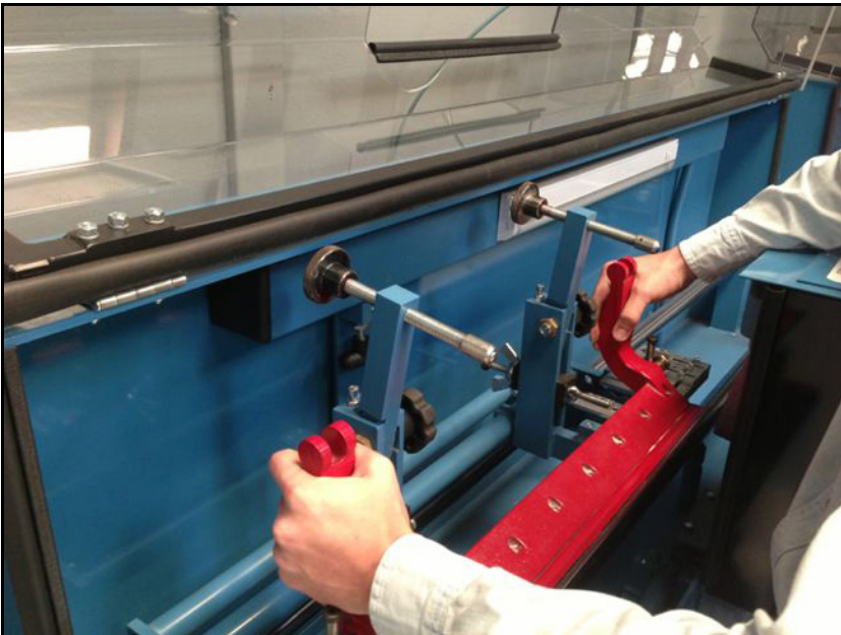
Unclamp the bed knife.



Then unclamp the arm...



...and swing it up.



Remove the bed knife.

Repeat this procedure until you have positioned a pair of nuts for each type of bed knife. You may have to try a couple times and you may reuse a nut on one end with a different nut on the other end.

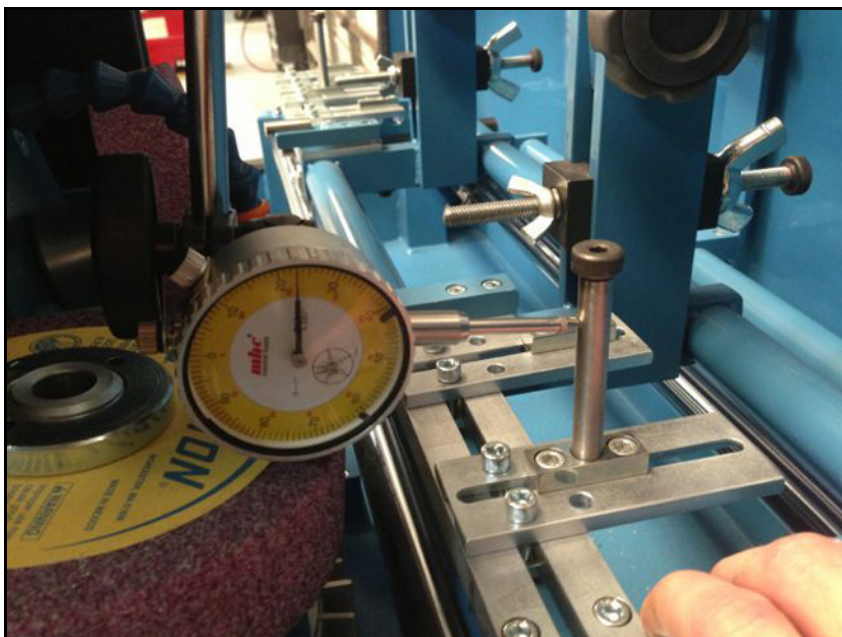


Clamp a magnetic base and dial indicator to the underside of the hood. (This comes with the Peerless 7000 Reel Grinder).



Position the indicator so the tip just touches the alignment pins.

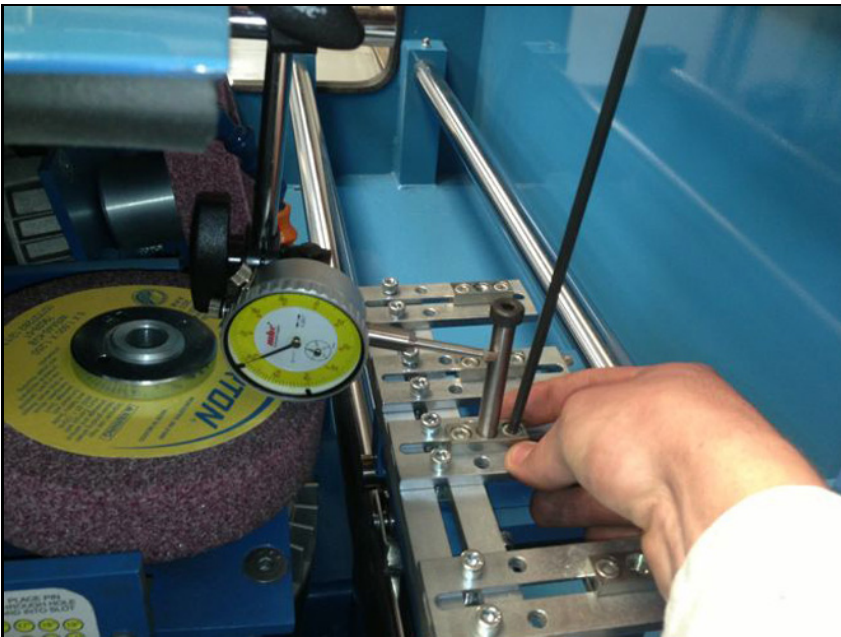
INFO-Do not lean on the grinder as it will change your indicator reading.



Move the carriage back and forth to find the high spot.



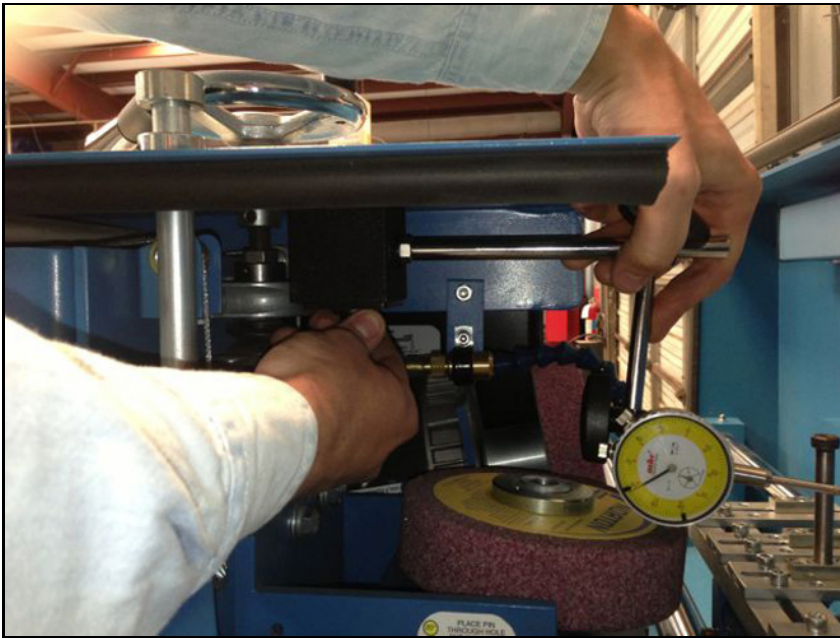
Set the dial to zero.



Move the carriage to the alignment pin on the other end and reposition the pin front to back until it also reads zero. You may tweek the position by just snugging the bolts and then tapping on the slide nut to move it.



Make sure all of your bolts are tight and that the pins are aligned within a .002-.003.

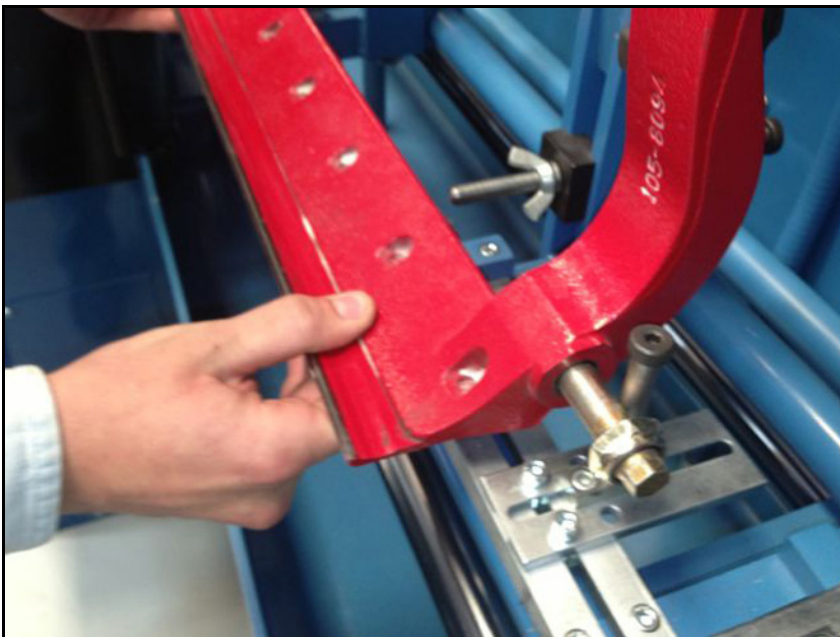


Remove the magnetic base.
Once the nuts are set, they should not be moved.

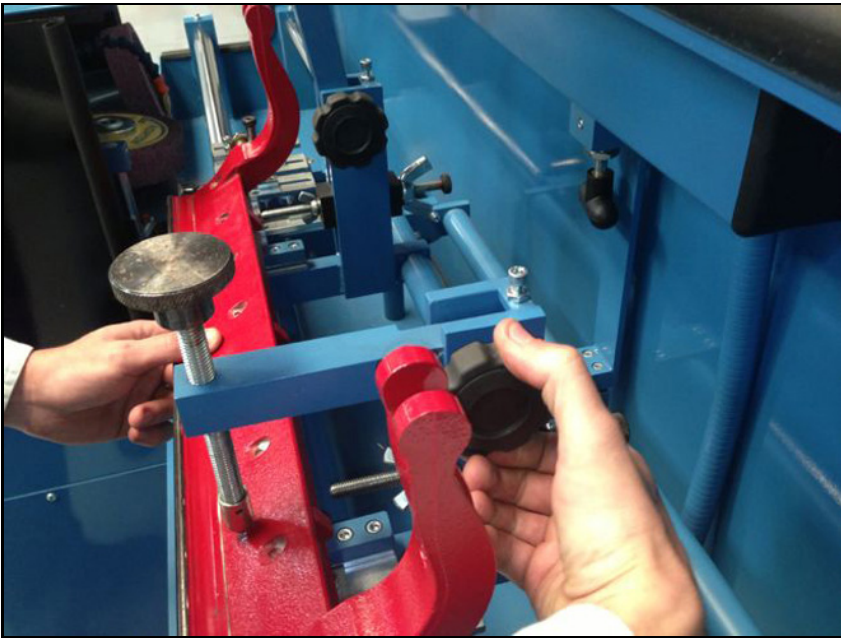


3.7 Loading Bed Knife with Pin Alignment Kit

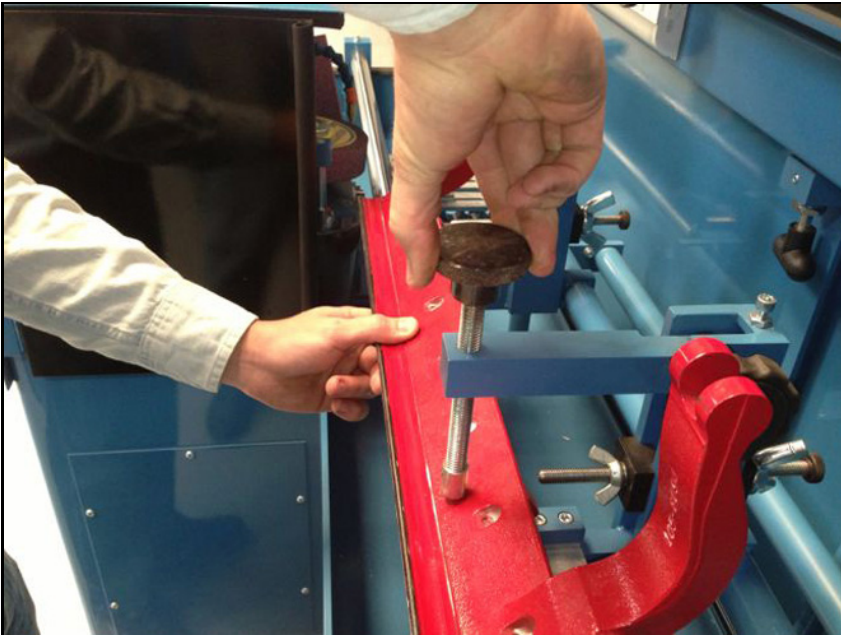
With the pivot bolts seated in the bed knife and the clamp arms raised, set the bed knife on the pallet.



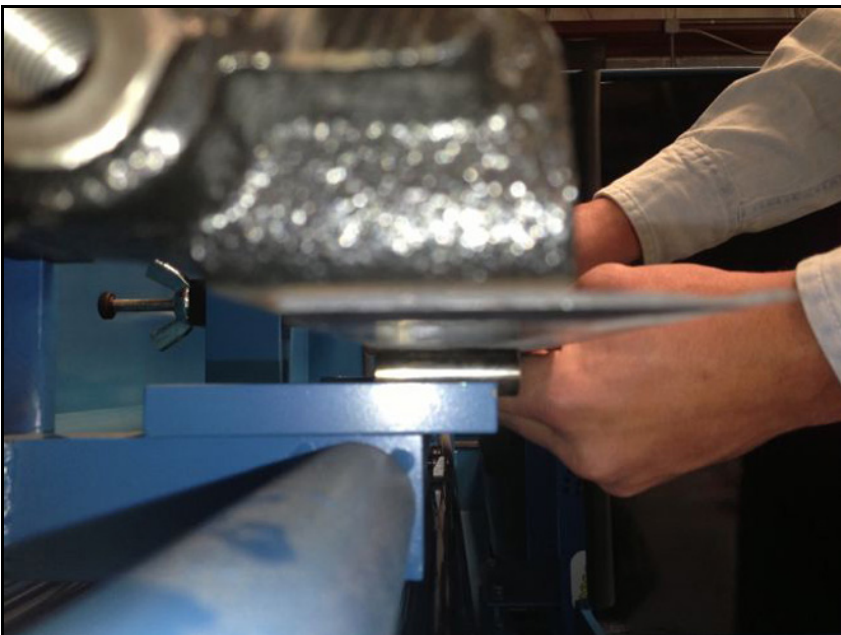
Slide the bed knife back until the pivot bolts are against the pins.



Lock the clamp arm.



Clamp the bed knife.

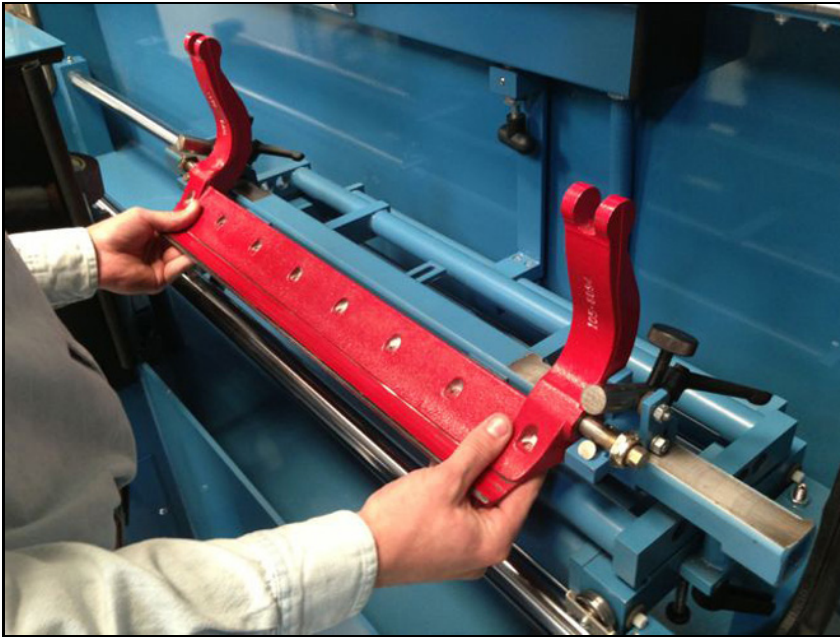


Make sure that it is properly seated on the supports.



3.8 Loading Bed Knife with V-Block Pallet

Loosen the v-block bracket and...



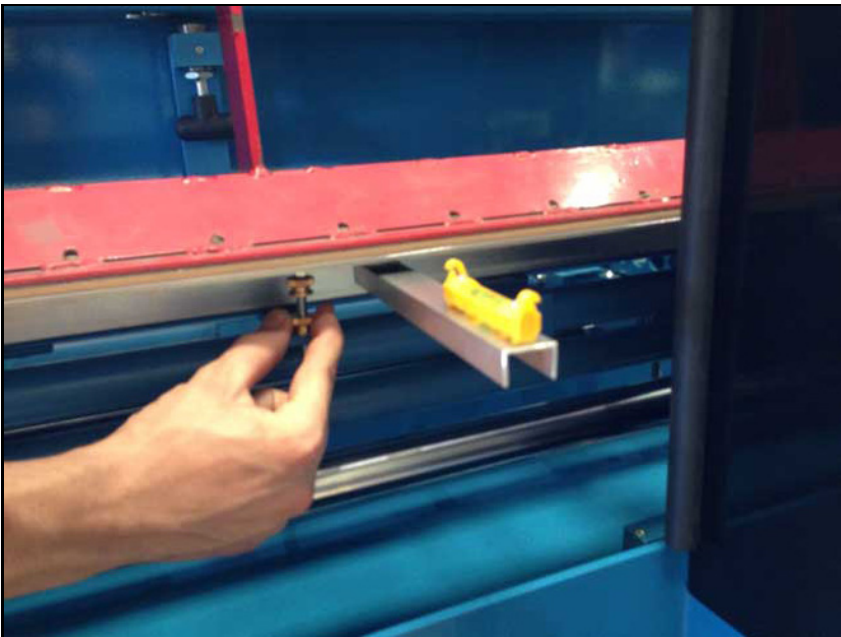
...position them to fit a bed knife with its pivot bolts seated.



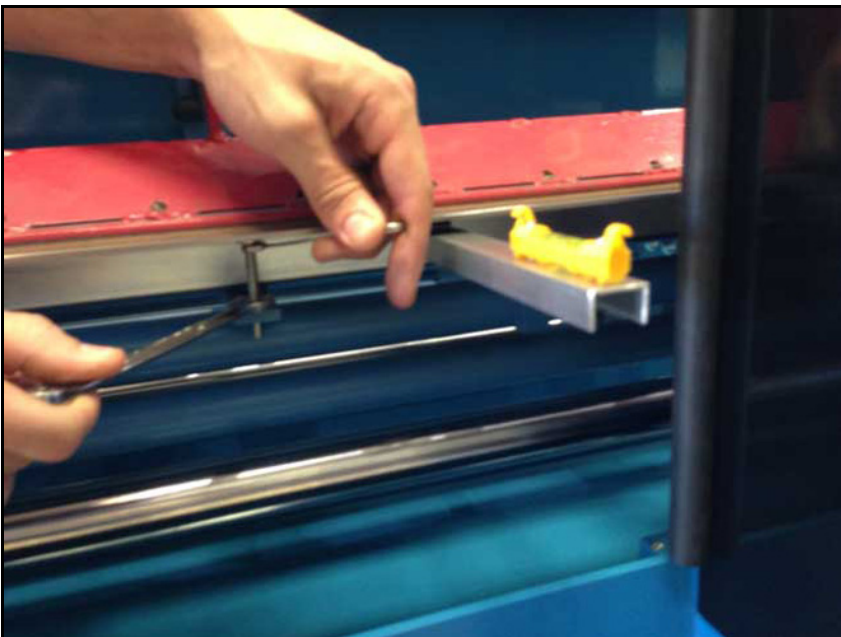
Unclamp the center support.



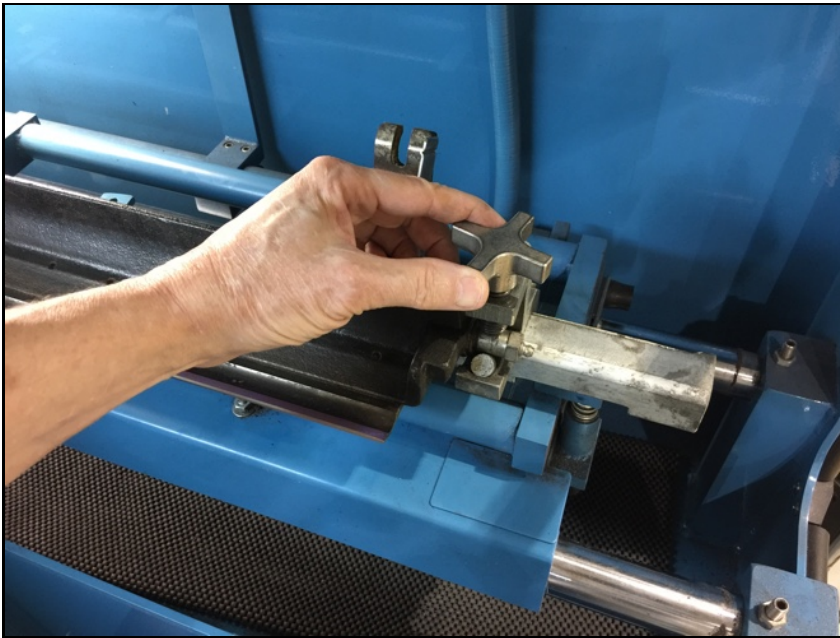
Position the center support bolt on the rear flat of the bed knife and reclamp the center support.



Place the level on the back flat of the bed knife and adjust the center support until it is level. Lock the brass nut.



You can make a permanent center support for each type of bed knife you have by using the different carriage bolts and lock nuts. Once it is adjusted, mark it for that bed knife and it can be removed and then replaced later for the same bed knife.



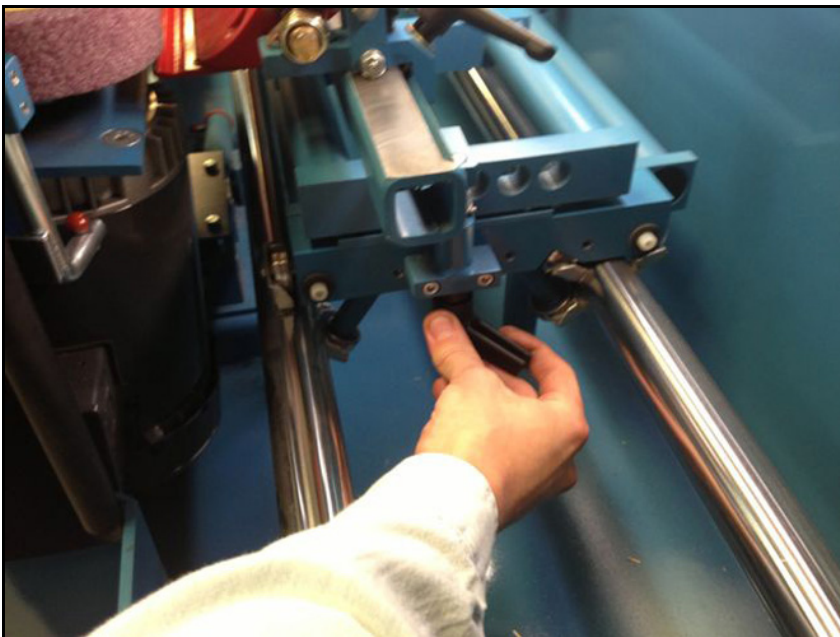
Clamp the bed knife in place.



3.9 Position the pallet

This procedure applies regardless of which style mounting you use. Unclamp the left pallet clamp.

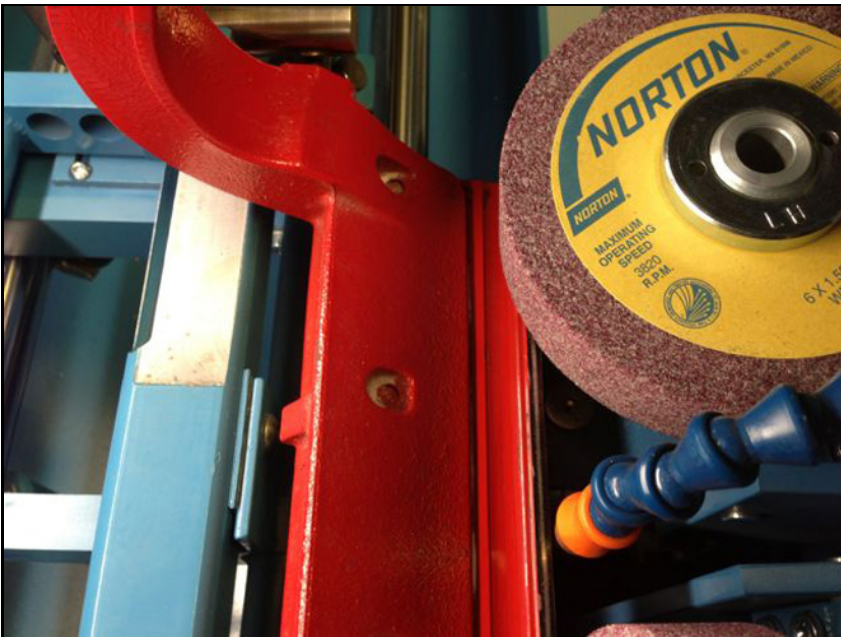
INFO-You only need to make these adjustments for the first bed knife of a group of similar bed knives.



Unclamp the right pallet clamp.



Slide the pallet up or back ...



...until the grinding stone is over the bed knife surface to be ground.



Lift up the right end of the pallet...



...and rock it on the left end then set it back down. This ensures the left end is properly seated.



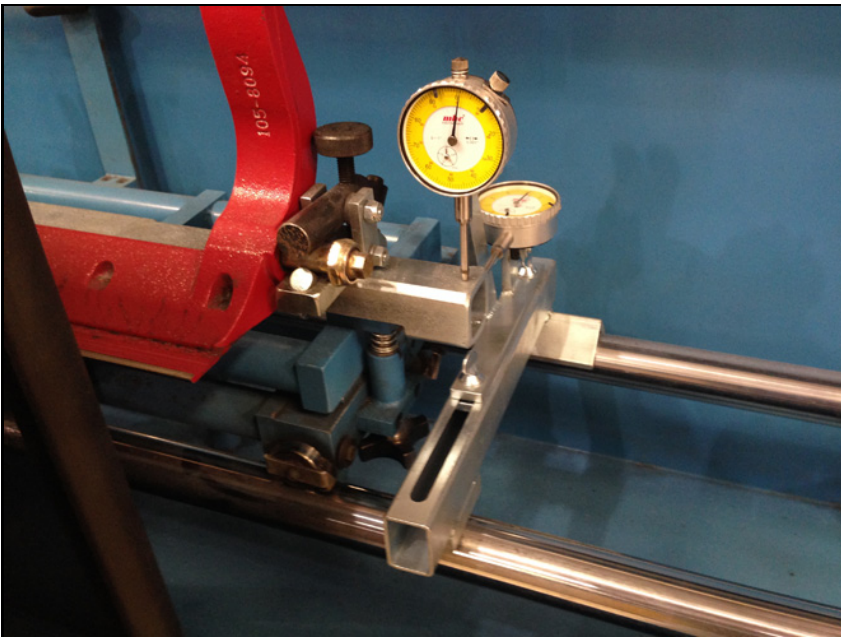
Rotate the clamps over the pallet.
Reclamp the left end of the pallet.



Reclamp the right end of the pallet.



Set the pallet gauge at the left end of the pallet. Adjust the gauge so both dial indicators read zero.

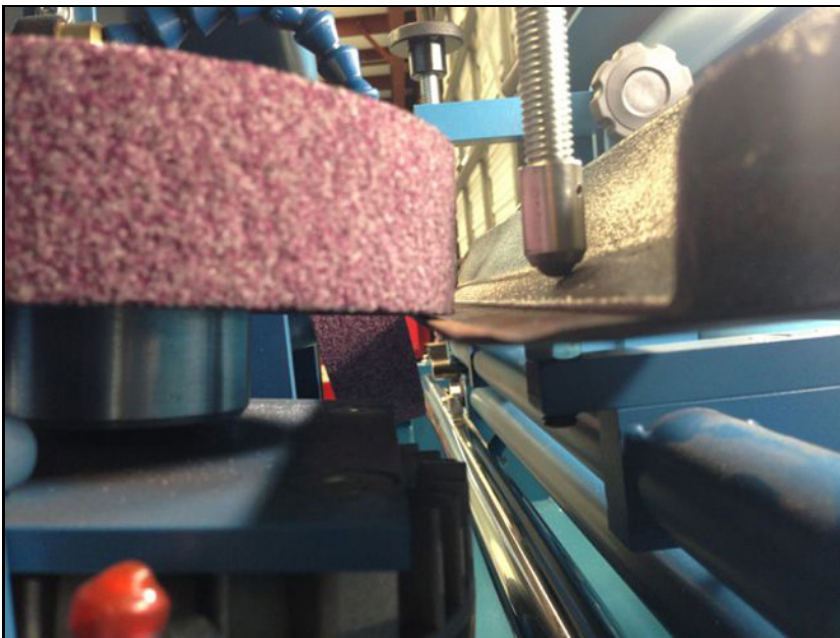


Move the gauge to the right end of the pallet and verify that both ends are within .002 to .003 inches. If they are not, make sure that both ends of the pallet supports are clean. You can also unclamp the right end, nudge the right end to zero and reclamp the pallet.

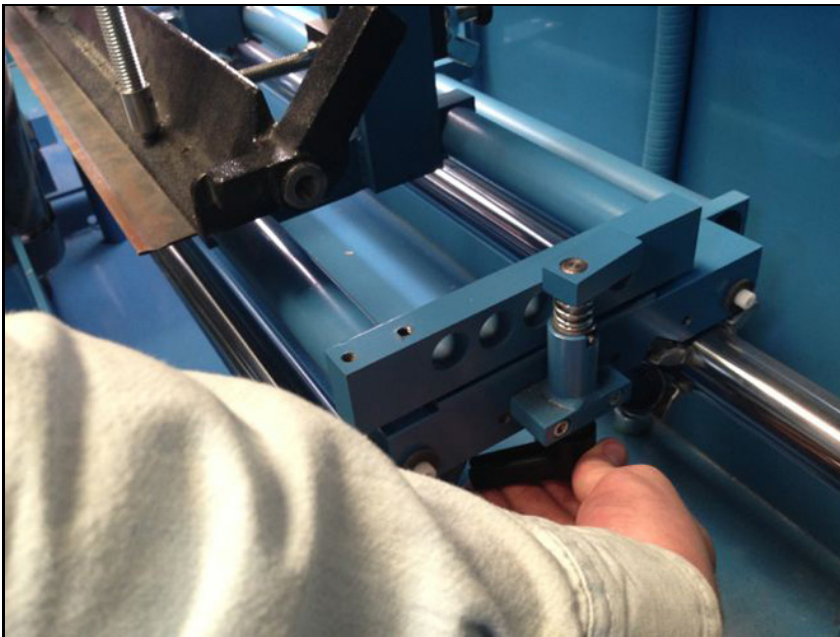


3.10 Checking contact

With the carriage at one end of the bed knife, adjust the top face stone down until...



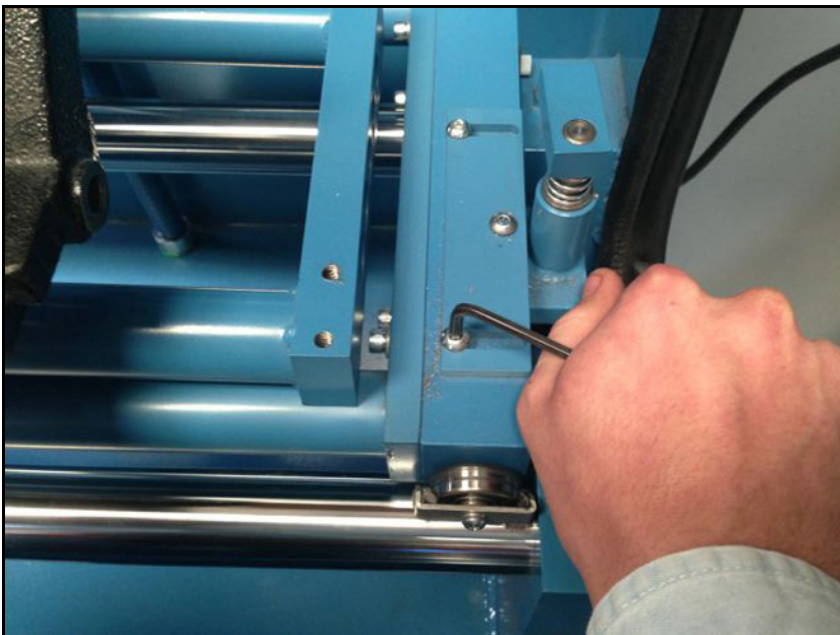
...it just touches the bed knife. Move the grinding head across the bed knife. There should be even contact all the way across unless the bed knife is badly worn. If the contact is not even, recheck your set up. Repeat for the front face.



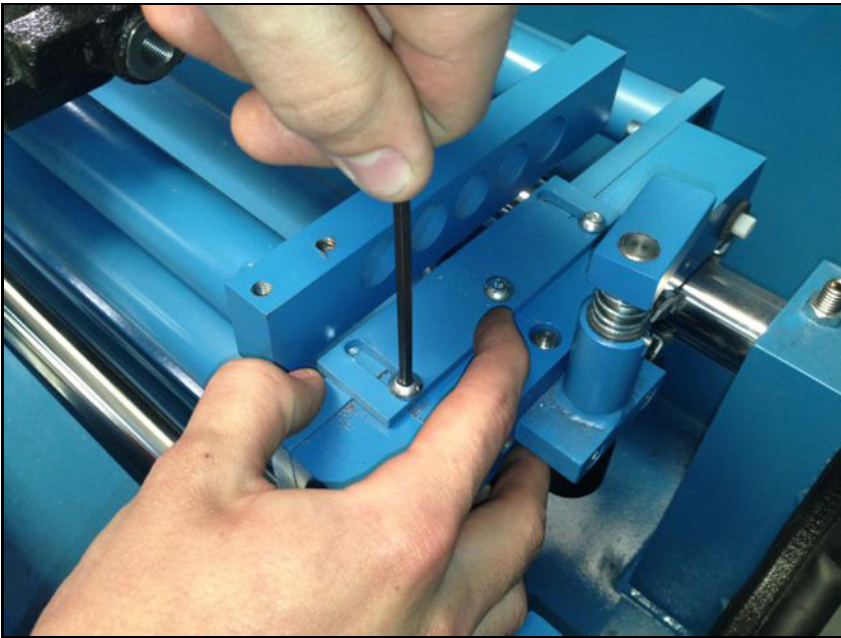
3.11 Vertical adjustment

In most cases, you will not need to make any vertical adjustments. If, for example, you have a thin tournament blade mounted to an uneven shoe, you may want to make a vertical adjustment to minimize the amount of metal removed.

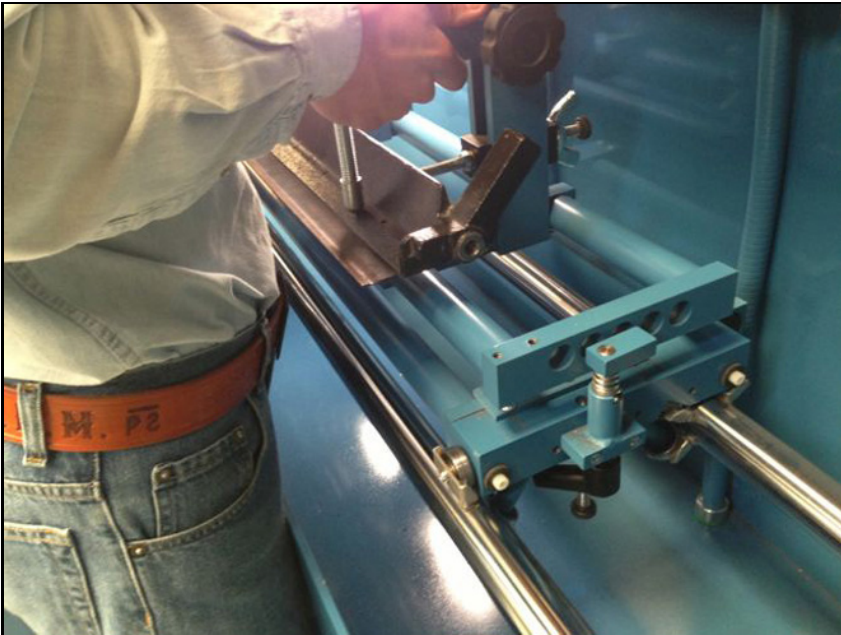
If necessary, unclamp. and move the pallet



Then loosen the two screws on the right end of the carriage which hold the vertical alignment pad.



Slide or remove the pad to expose the vertical adjusting screw. Retighten the two screws.



Replace the pallet.



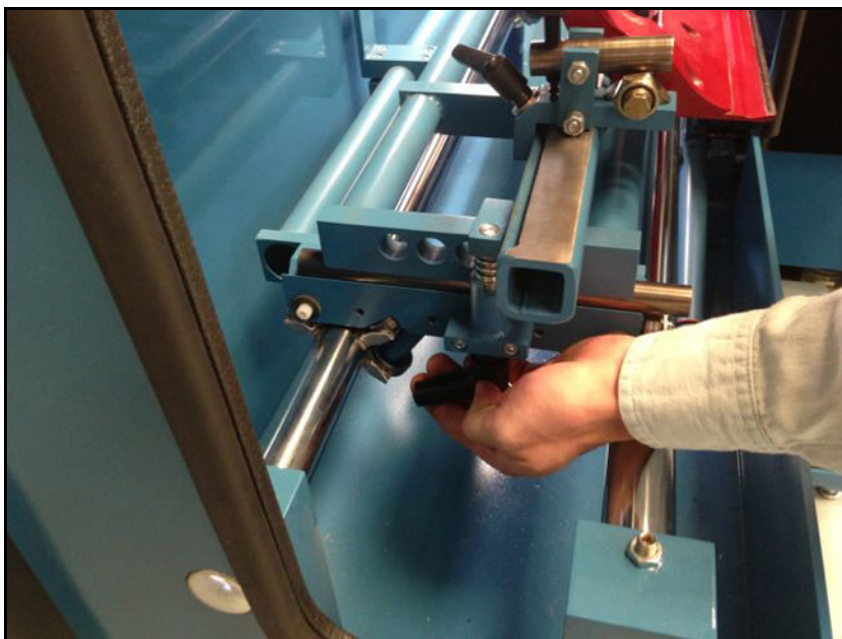
Unlock the vertical adjusting screw.



Infeed the vertical adjusting screw until the top touches as evenly as possible across the top face

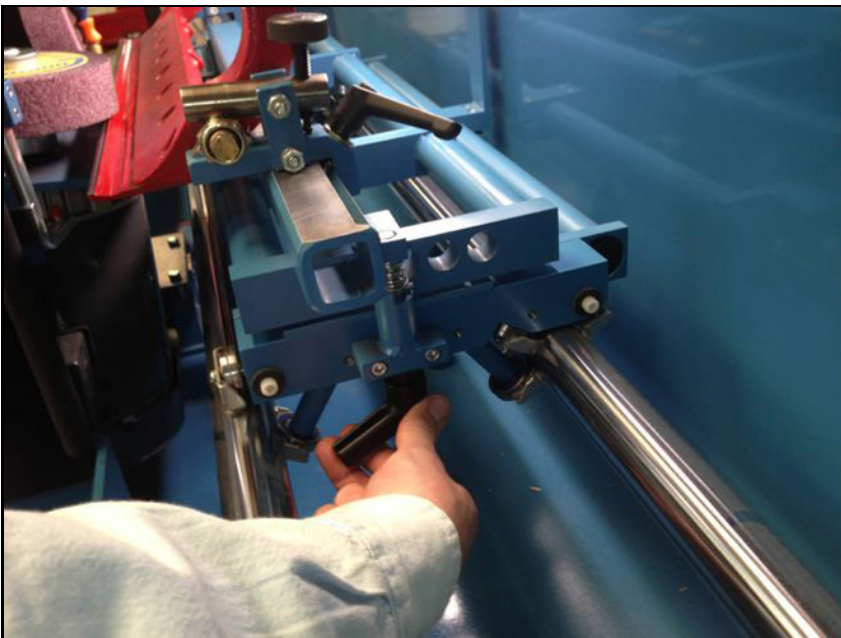


Relock the adjusting screw.

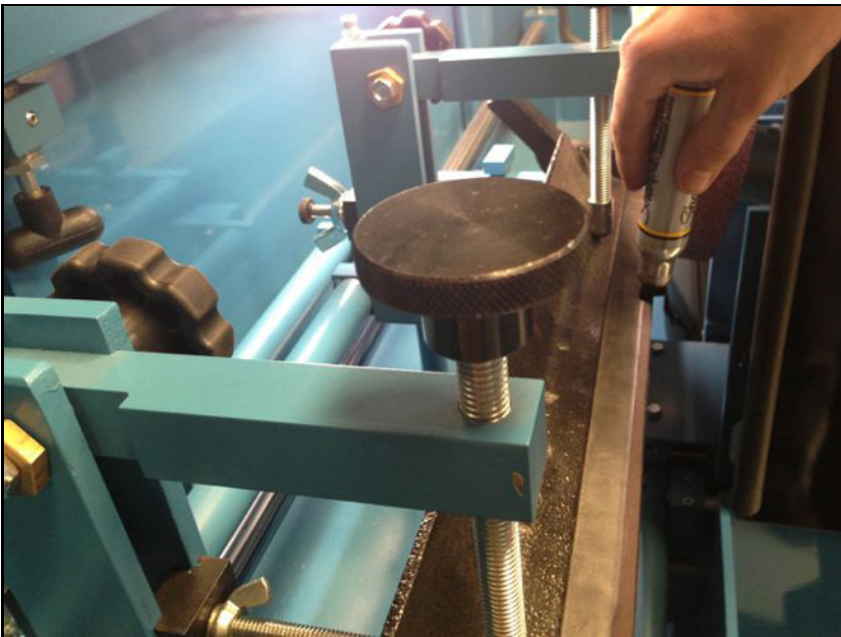


Relock the left pallet clamp.

INFO-Whenever you move the pallet, you should lift and set down the right end to ensure the left end is properly seated.

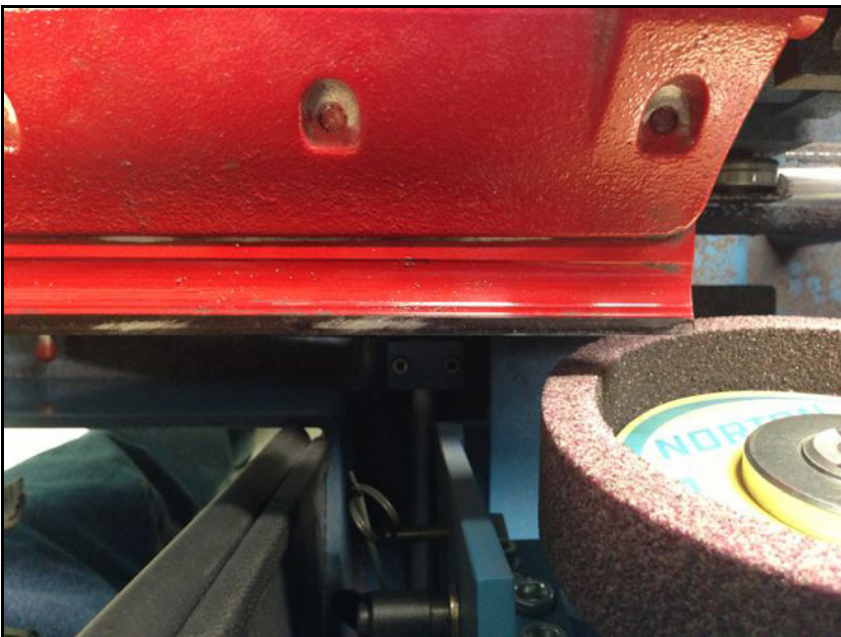


Relock the right pallet clamp.



3.12 Checking Angles

Apply either permanent marker or layout fluid to surface to be checked, then scratch the blade with the grinding wheel.



If you are grinding a new blade, the scratch should be fairly even from front to back.



If you are grinding a used blade the scratch should be heavy on the back.



If the scratch is heavy on the front of either a new or used blade, then you may need to adjust the angle to compensate or dress the grinding wheel.



4.0 Grinding the bed knife.

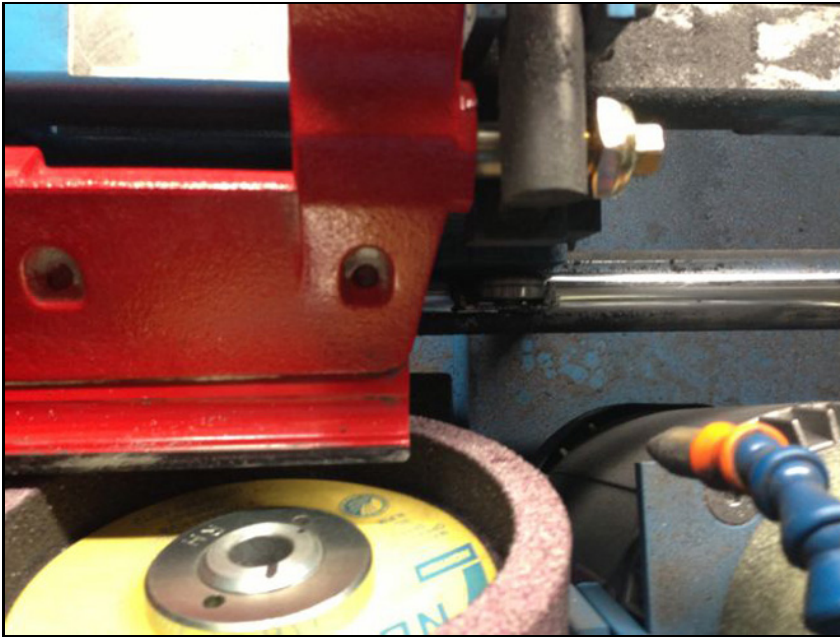
Position the coolant nozzle over the edge of the bed knife.



Engage the carriage into the drive cylinder.



Set the travel stops so that...



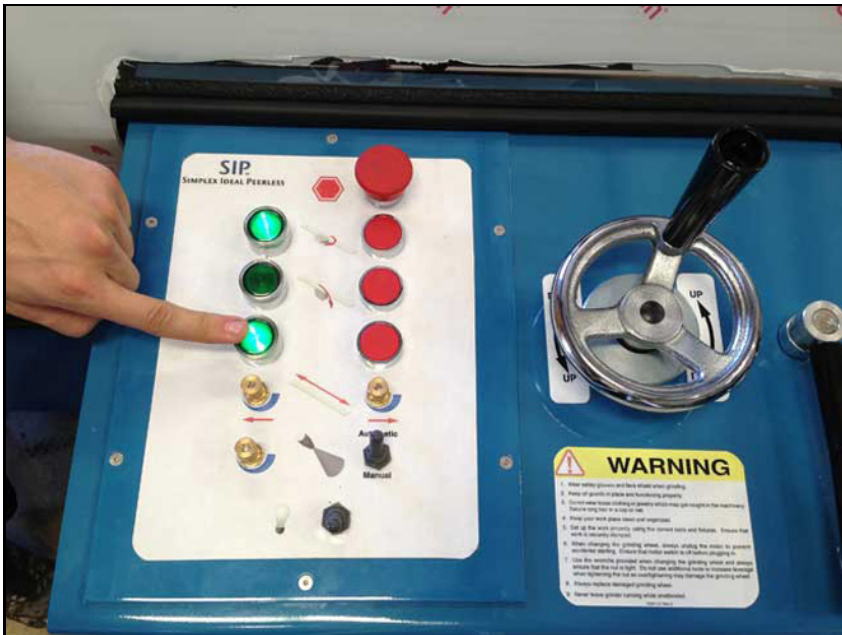
the part of the grinding wheels touching the bed knife (the inside edge) clears the ends of the bed knife.



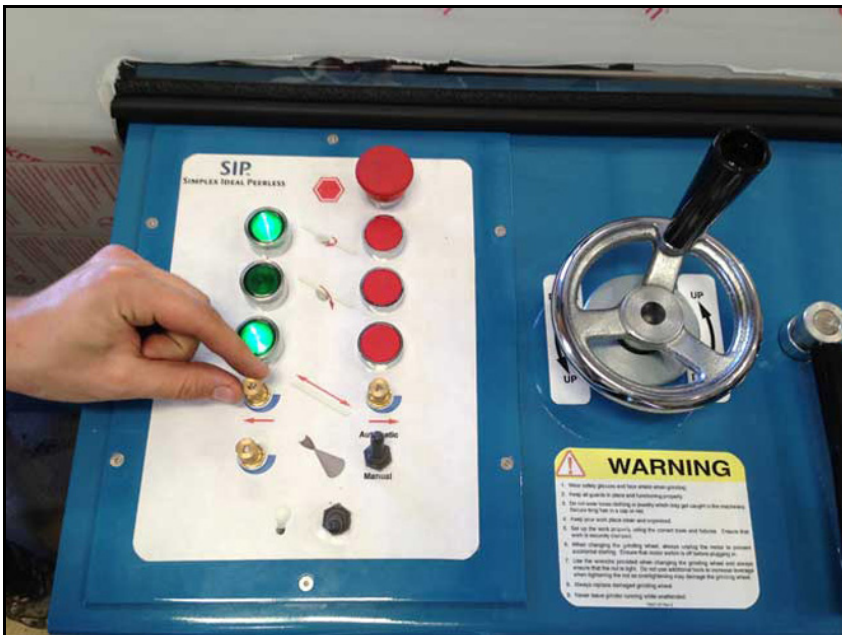
Close all of the doors.



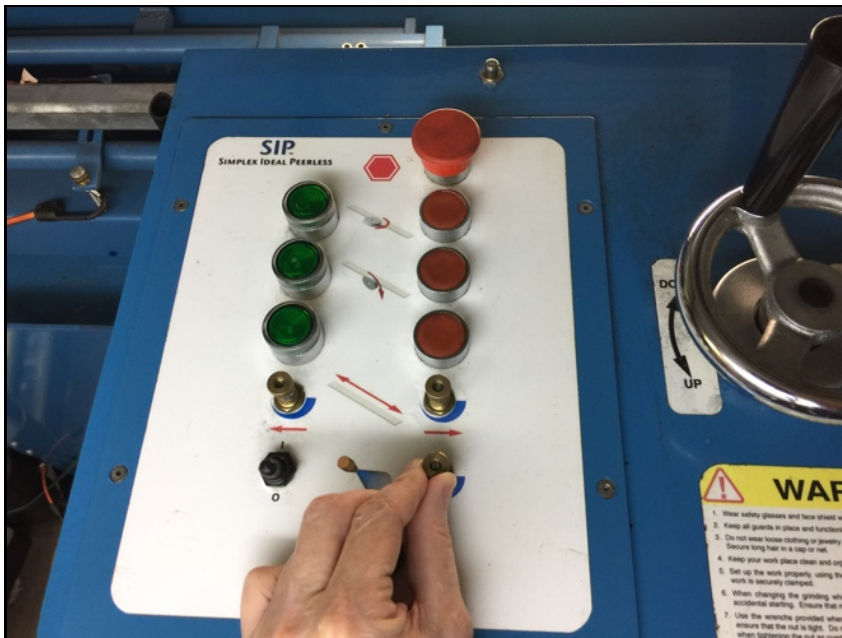
Turn the top face grinding motor on.
WARNING-Always close shield when grinding.



Turn the carriage on.



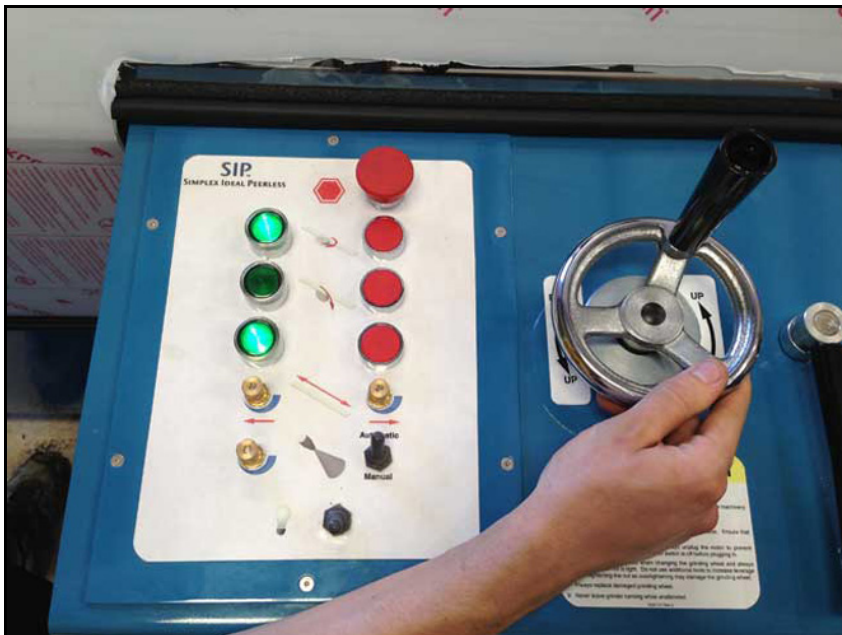
Set the speed in each direction.



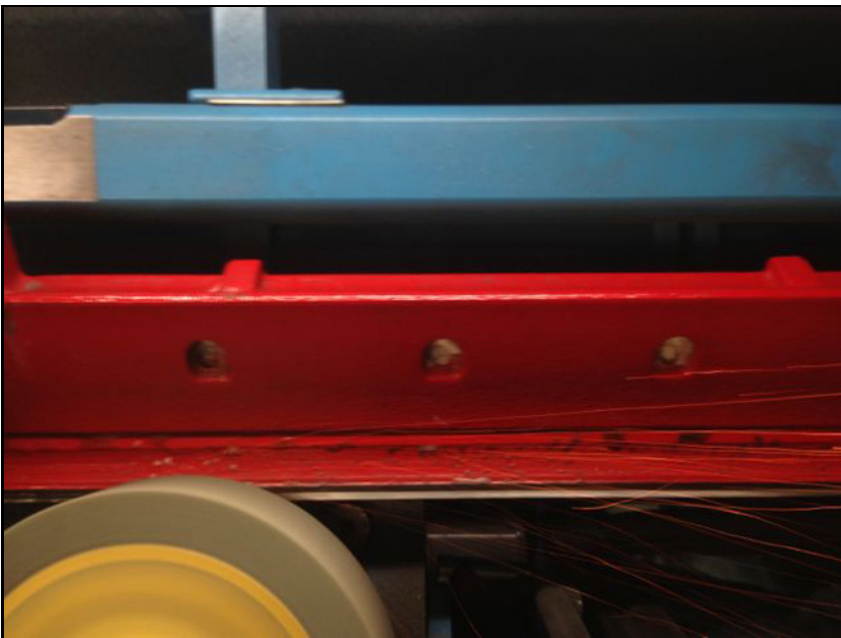
Adjust the coolant flow.



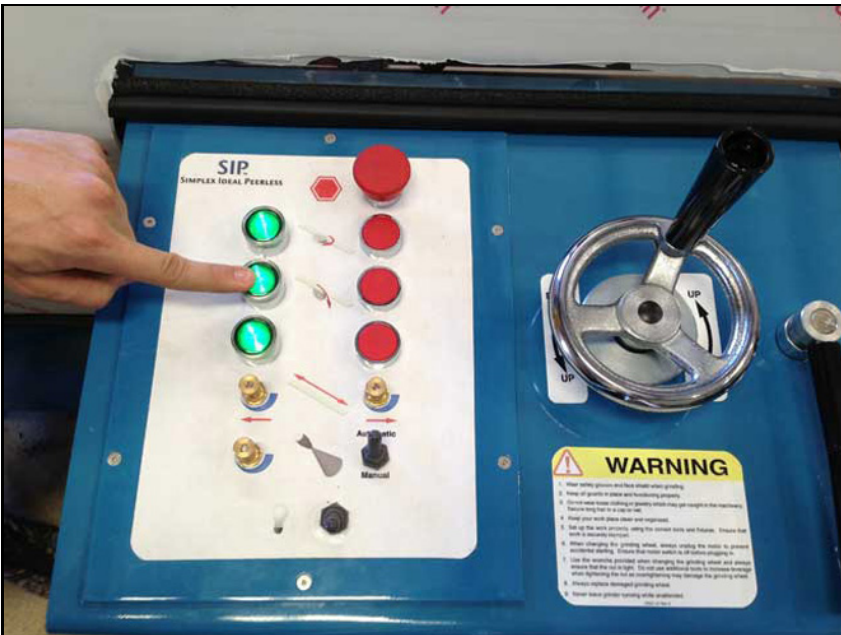
You can increase or decrease the coolant flow, you can open the door, hold the momentary switch for the coolant and adjust the coolant by rotating the nozzle.



Infeed the grinding wheel until...



...it starts to grind. Continue infeeding the grinding wheel until it is grinding all the way across the bed knife.

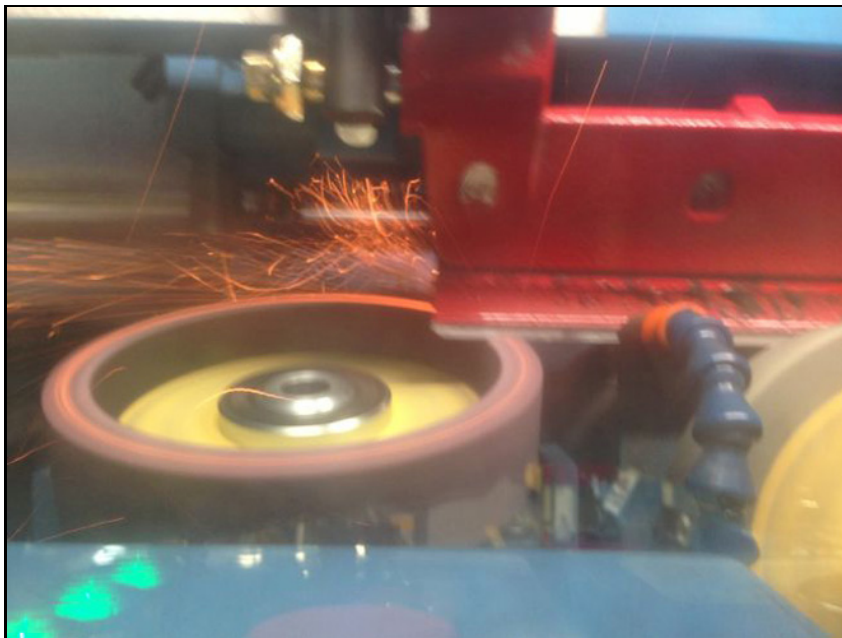


Turn the front face grinding motor on.

WARNING-Always close shield when grinding.



Infeed the grinding wheel until..



it starts to grind. Continue infeeding the grinding wheel until the front face is done.



Back off the front face right grinding wheel and turn the right grinding motor off.



Continue infeeding left grinding head until the top face is done. Let the top face spark out after you have completed the front face.

Turn the grinder off when the grinding head is off one end of the bed knife. Then remove the bed knife



4.1 Dressing the top face stone

You can reposition the dresser to minimize the grinding head movement. Loosen the two set screws to slide the dresser support up or down, then retighten the set screws.



Move the top head up or down until...



...the diamond dresser just clears the stone.



Turn on the top face motor, then infeed the grinding head and swing the dresser until no sparks appear. Turn off the top face motor.

WARNING-Always close shield when dressing the stone.



4.2 Dressing the front face stone

Move the front head in or out until ...



...the diamond dresser clears the stone.



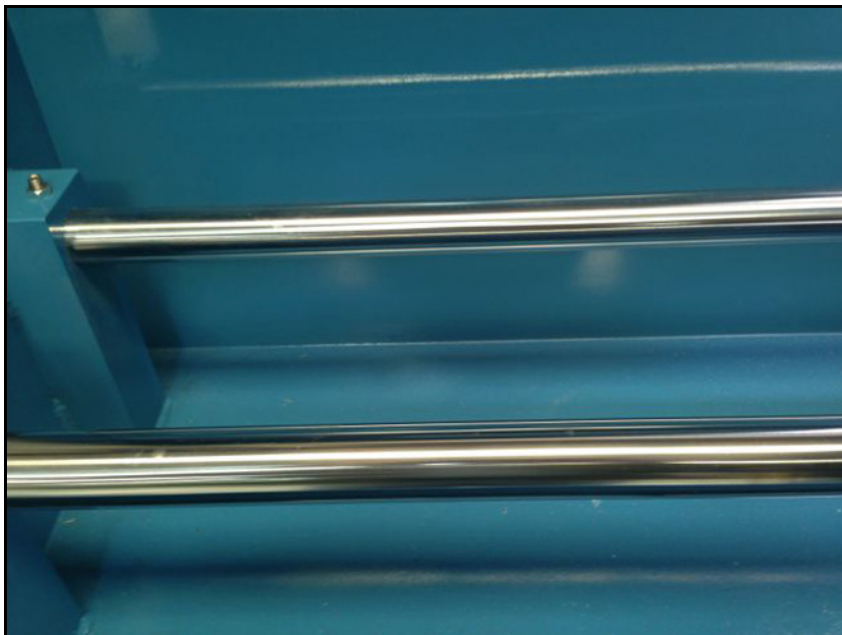
Turn on the front face motor, infeed the grinding head and swing the dresser until no sparks appear. Turn off the front face motor.

WARNING-Always close shield when dressing the stone.



5.0 General maintenance

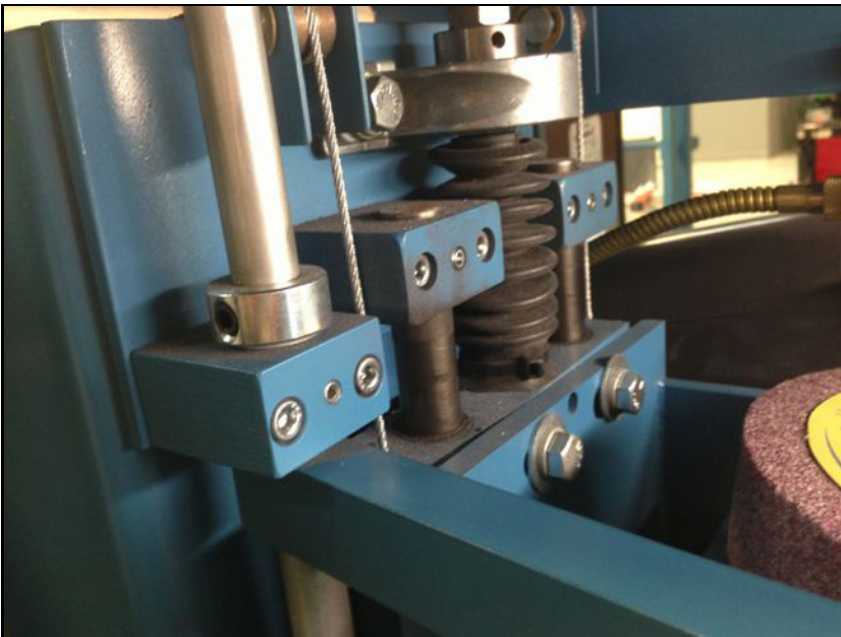
The carriage bearings are permanently sealed and lubricated. They require no lubrication or attention except to be kept clean.



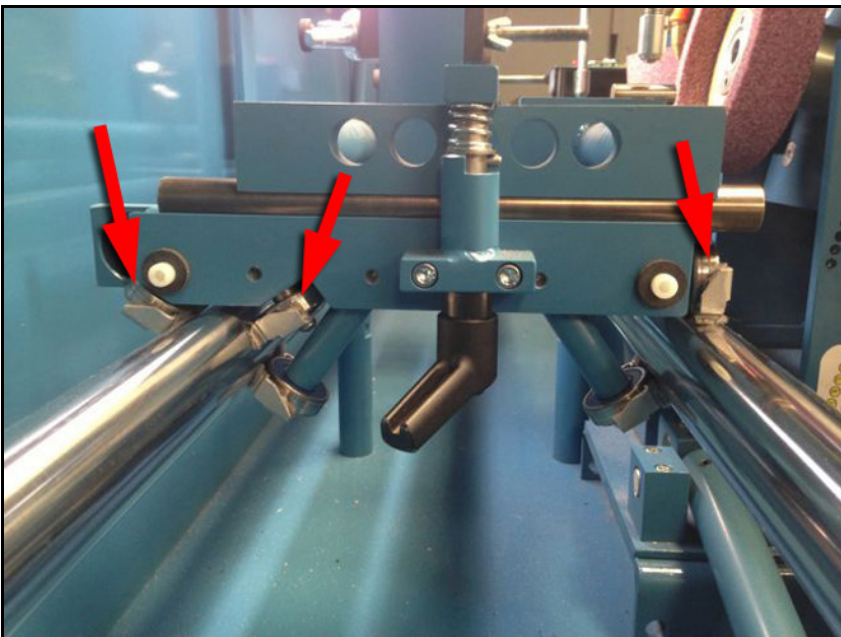
The track shafts must also be kept clean and free from grinding dust and are equipped with integral wipes. Do not oil the track shafts as that will cause the grinding dust to cling to the track shafts and make the wipes ineffective.



The grinder is equipped with totally enclosed fan cooled motors which require no regular maintenance. The motors should be cleaned periodically with either a vacuum or compressed air.

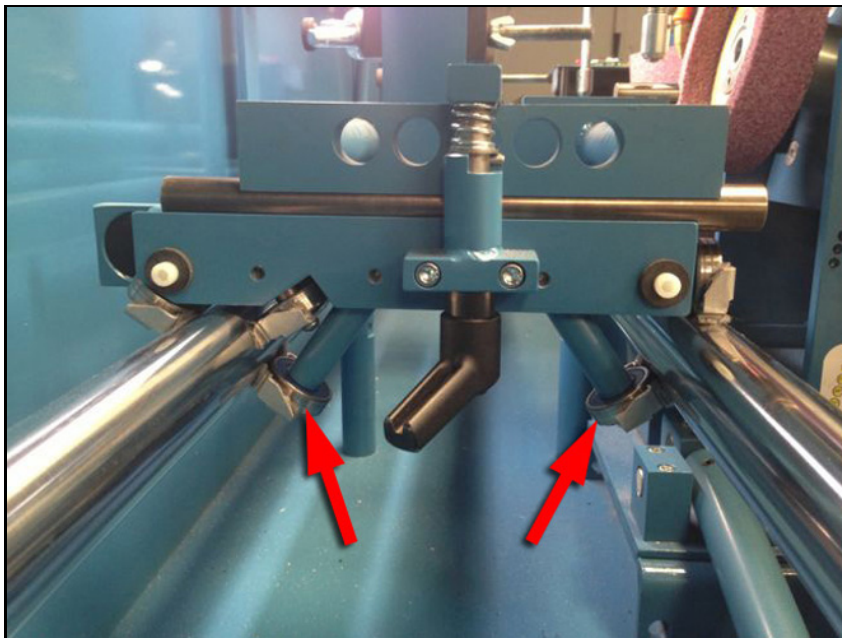


The feed screws are fully enclosed and should not need any maintenance.

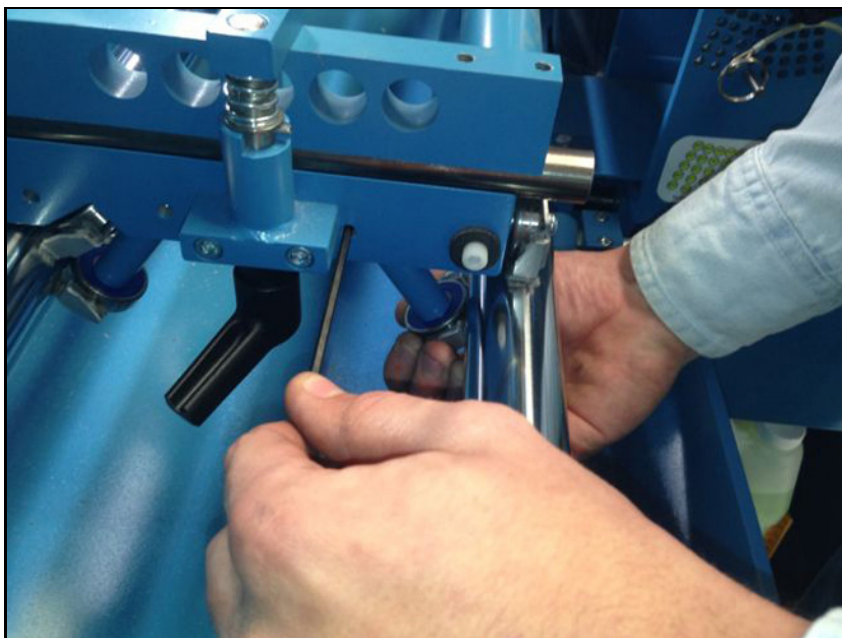


5.1 Adjusting the carriage bearings

The six bearings on the top of the track shaft do not need adjusting.



The remaining four bearings are mounted on eccentric axles and may need occasional adjusting.



Loosen the set screw which locks the bearing axle and turn the axle so that bearing just touches the chromed track shaft. Retighten the locking set screw. The bottom bearings should just touch the track shaft and slip when turned. The top bearings should all contact the track shaft without the carriage rocking. Not all bearings will be in full contact with the track shaft over its full length.



5.2 Mounting grinding wheels

Ring a new grinding wheel to ensure it is undamaged. Do this by holding it in the arbor hole and gently tapping it with a wooden handle of a screw driver or similar tool. If the grinding wheel does not ring, do not use it.

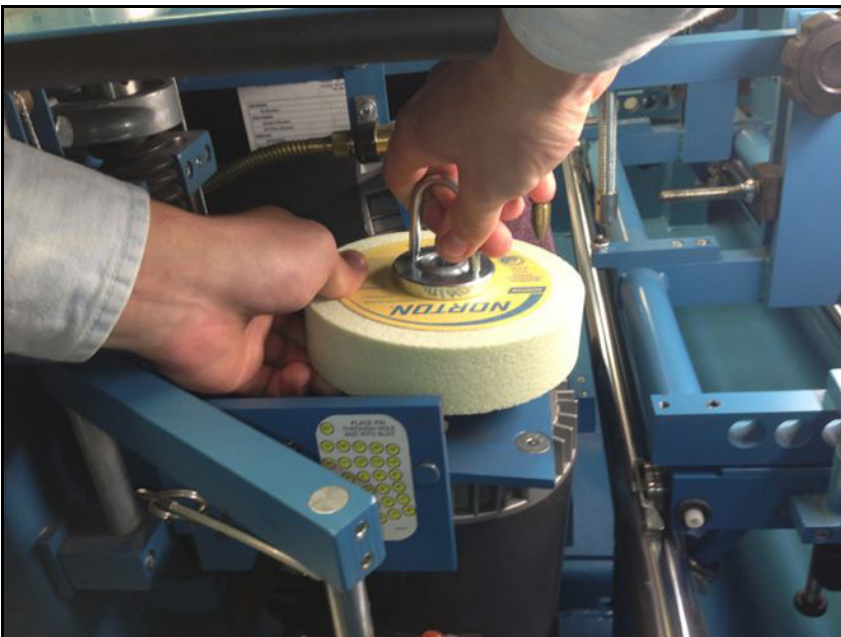
DANGER-Do not use damaged grinding wheel as it may come apart and cause damage, serious injury, or loss of life!



Using the u-wrench provided, hold the grinding wheel and unscrew the wheel nut. The left grinder is clockwise to loosen. The right grinder is counterclockwise to loosen.



Place the new grinding wheel on the hub.



Tighten with the u-wrench provided. Do not overtighten as you may damage the grinding wheel. Use extra caution when turning the grinding motor on and off the first few times after you have mounted the grinding wheel. If the nut is not tight enough, it and the grinding wheel may come off when you turn the motor off.

DANGER-Do not overtighten the nut as it will cause the grinding wheel to explode!



5.3 Adding coolant

Remove the lid and remove the jug.



Add coolant and...



...water according to package directions.
Replace the jug.