



SIMPLEX IDEAL PEERLESS



Ideal 650 Bed Knife Grinder 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 - Do not over tighten the head clamp bolt as it will limit head movement and may cause damage to the head.

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 over tighten 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.

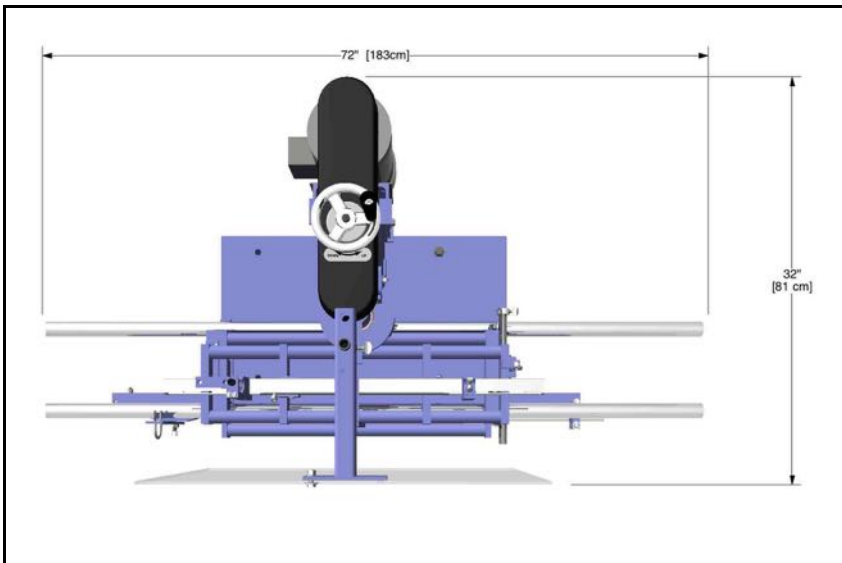
You must obtain prior authorization before returning defective parts to SIP Corporation.



2.0 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



2.1 Locating the grinder

Determine where on a concrete slab the Ideal 650 will be located. The Ideal 650 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.

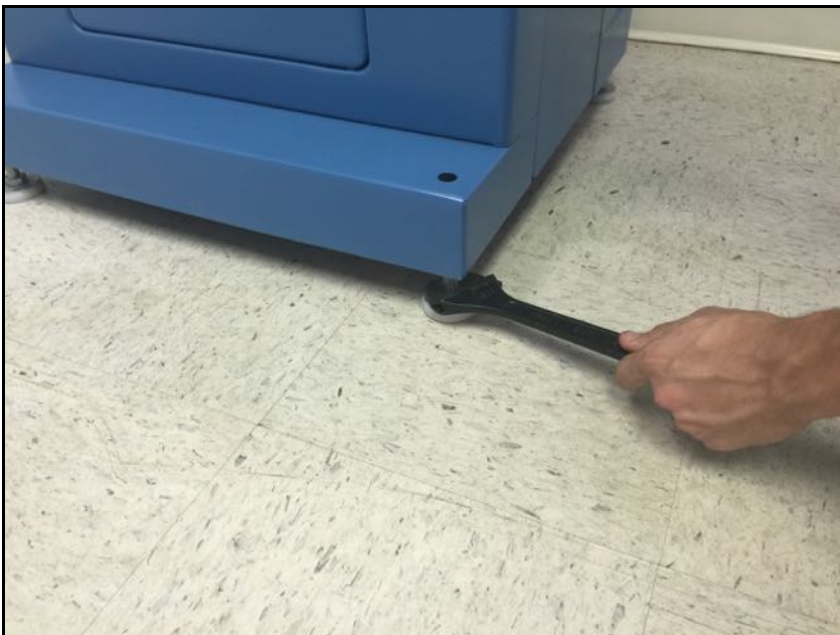


2.2 Assembling the Grinder

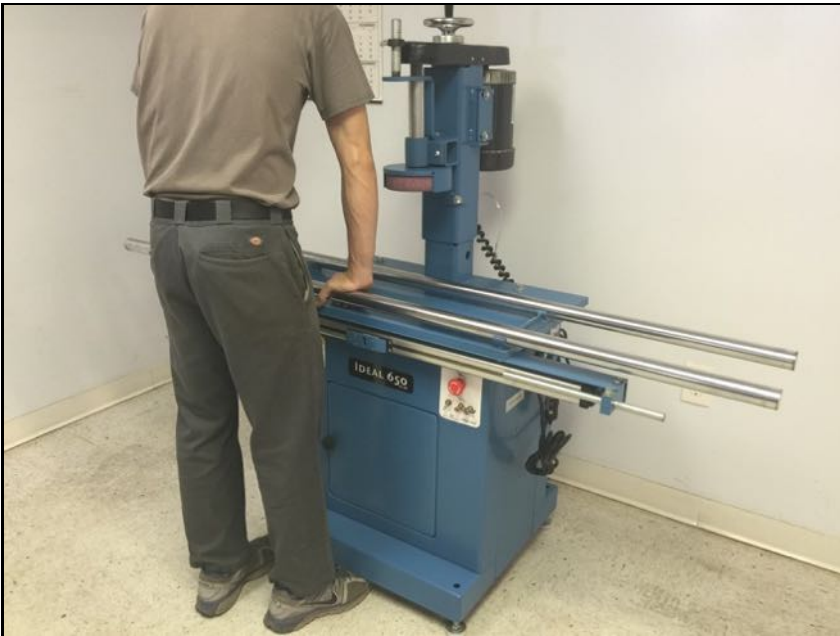
Mount the leveling pads provided in to the four corners of the grinder.



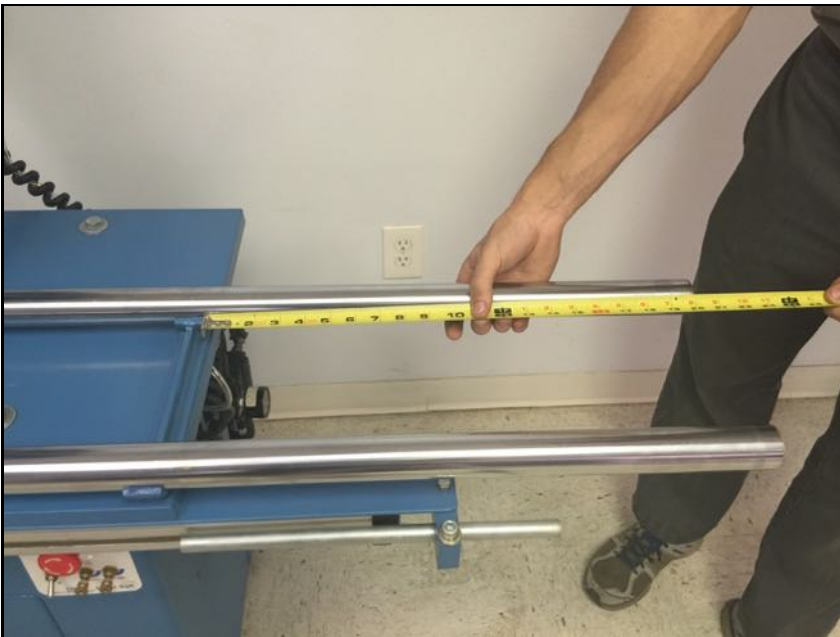
Lower the grinder in its final location. Check the grinder for level front to back and left to right using the level provided.



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



Unpack the track shafts and place them on the track shaft supports.



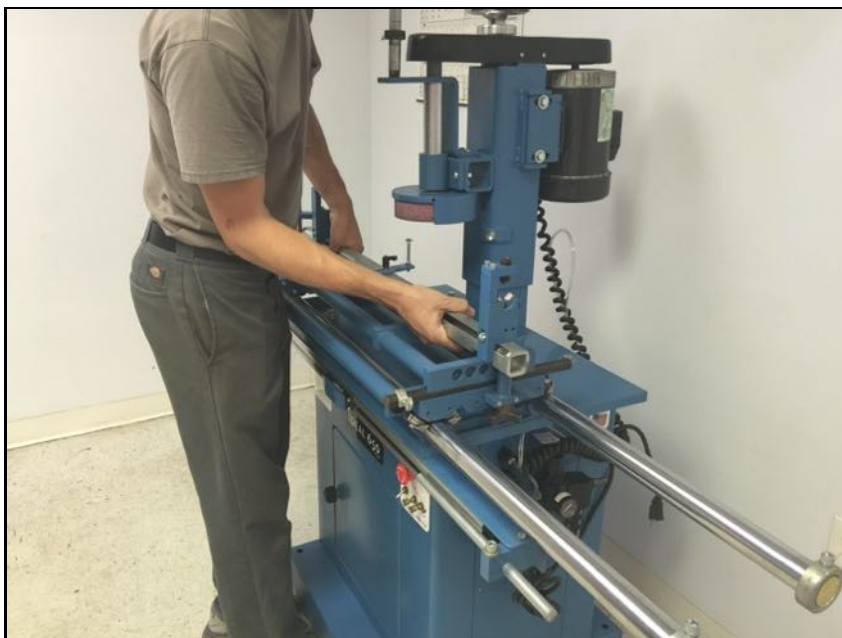
Set the track shafts so they extend 20 inches from the right track shaft support.



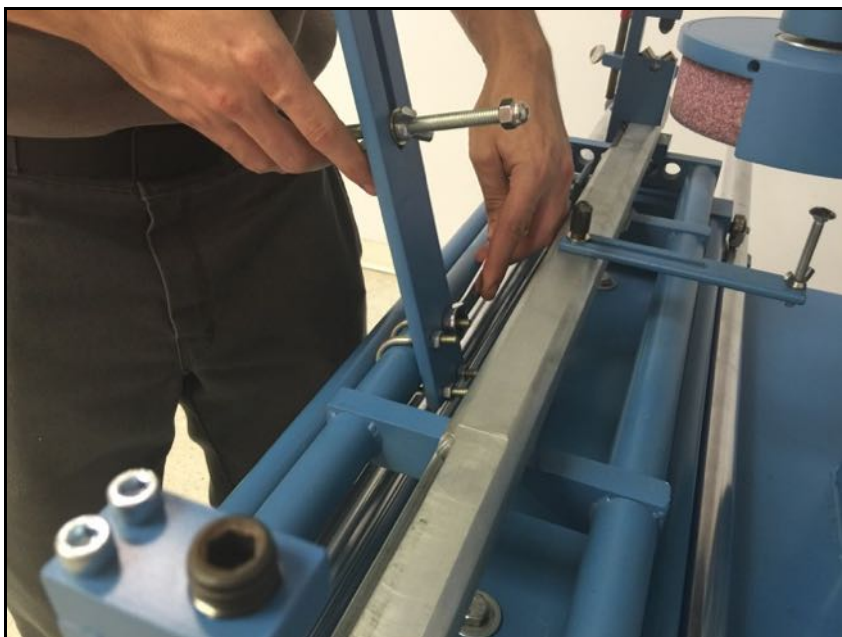
Place the pad on the supports and adjust them until they just touch the track shaft



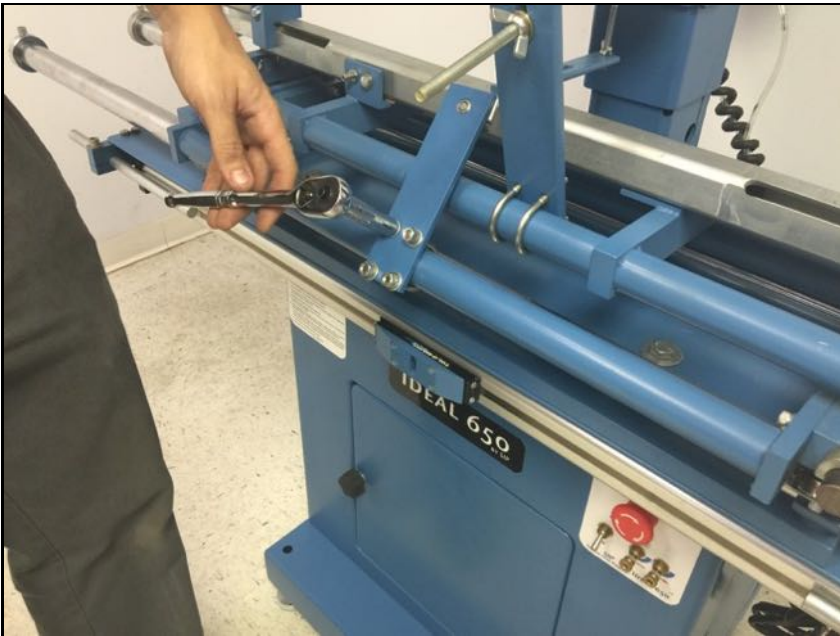
Mount the collars on each end of the track shafts.



Unpack and place the carriage on the track shafts.



Assemble the bed knife locating bracket on to the pallet.



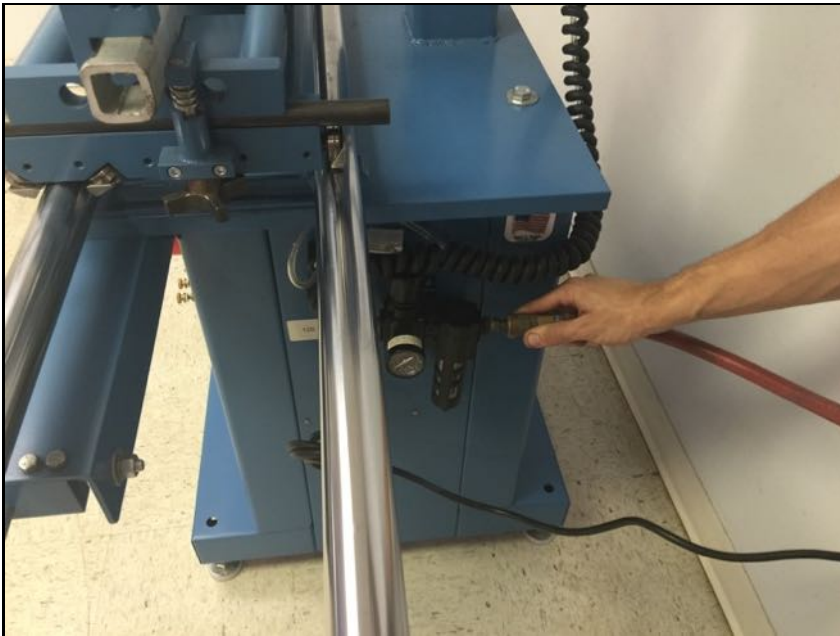
Mount the carriage drive bracket as shown and tighten the tops of the two u-bolts until the nuts are flush with the ends. Leave the bottom nuts loose.



Rotate the bracket around so there is about 1/8 inch clearance between the bracket and the cylinder, then tighten the top nuts on the u-bolts.



Mount the shield on to its support post.



2.3 Connecting the service

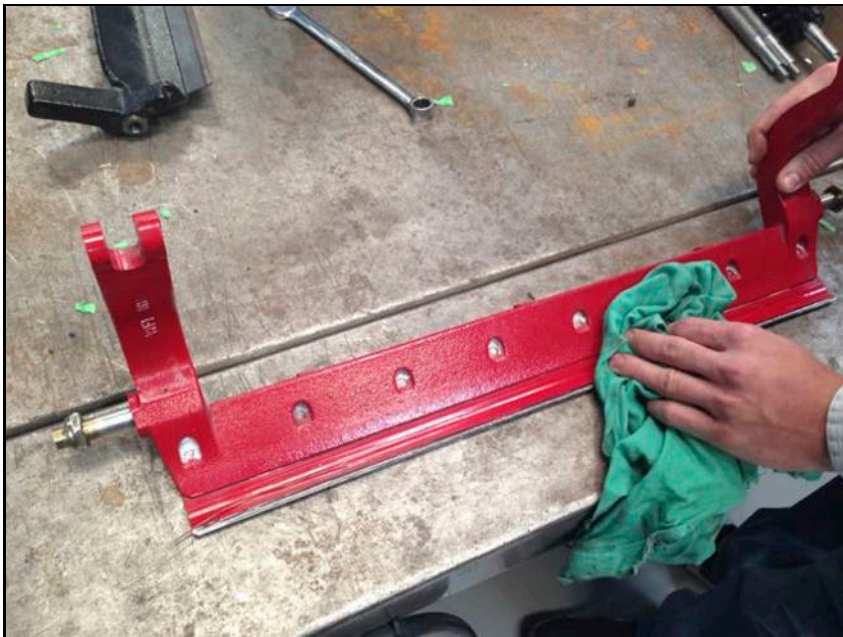
Connect the air supply to the filter regulator.



Set the pressure gauge to 70 psi.



Plug the electrical cord into a 110 volt outlet.

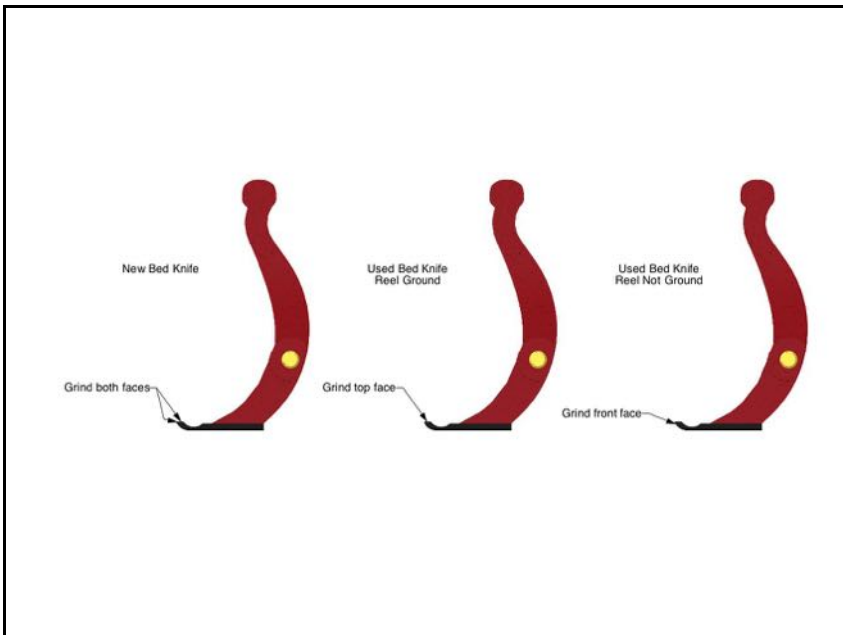


3.0 Preparing the bed knife for grinding

Clean all dirt, grass, rust, grease, and oil from the bed knife 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

Reinstall the pivot bolts.



3.1 Grinding Strategy

If you are grinding a new bed knife, it is recommended that you grind both the front and top faces.

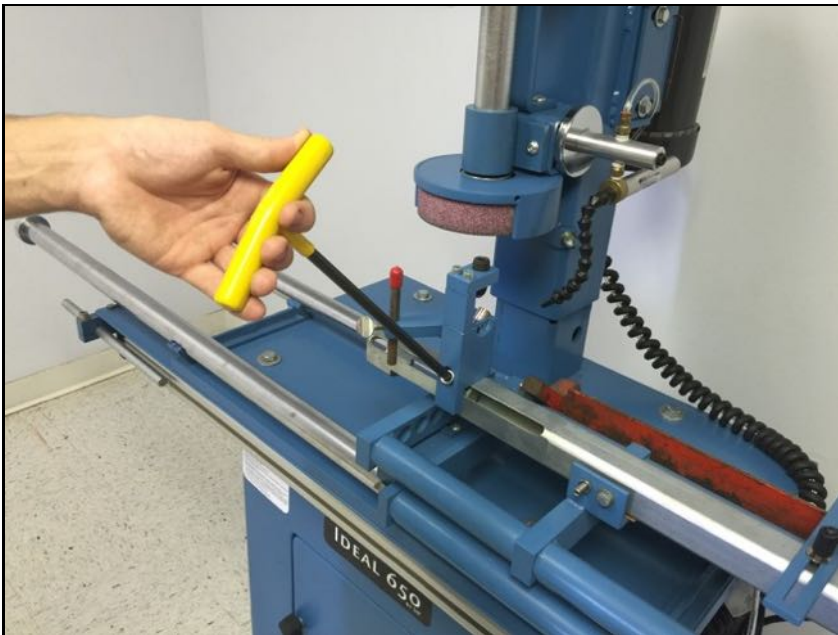
If you are regrinding a used bed knife, it may not always be necessary to grind both faces. If you are regrinding the bed knife but not the reel, you may only want to touch up the front face. If you are grinding the reel and regrinding the bed knife you may only want to touch up the top face.



3.2 Loading the bed knife

For the first bed knife in a batch, you will need to do some basic set up. Once the set up is complete, you should be able to load and grind the bed knives.

To begin, place the bed knife centered on the back of the pallet.

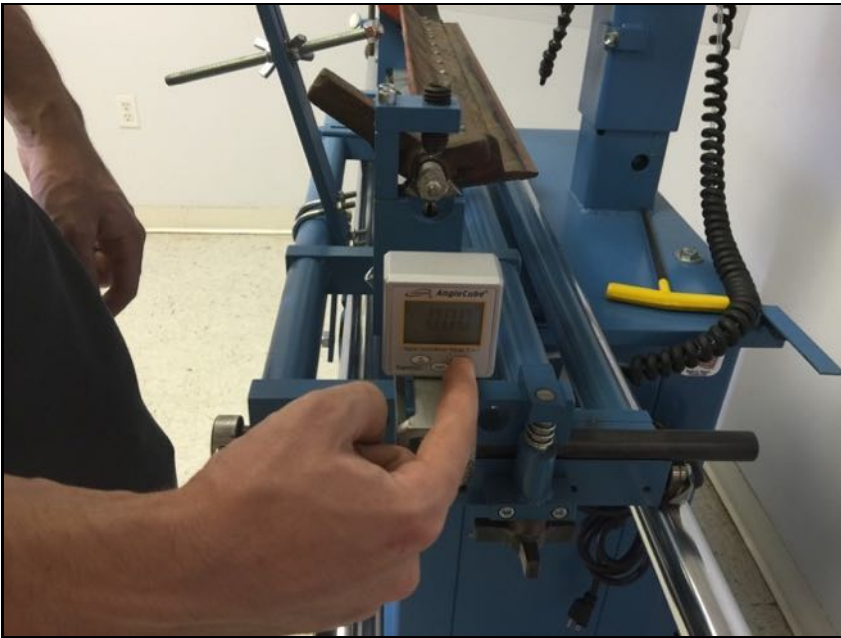


Adjust and clamp the v-supports so they line up with the bed knife pivot bolts.

WARNING-Make sure all clamps are tight. Loose clamps can allow bed knife to move and damage either the bed knife or grinding wheel.

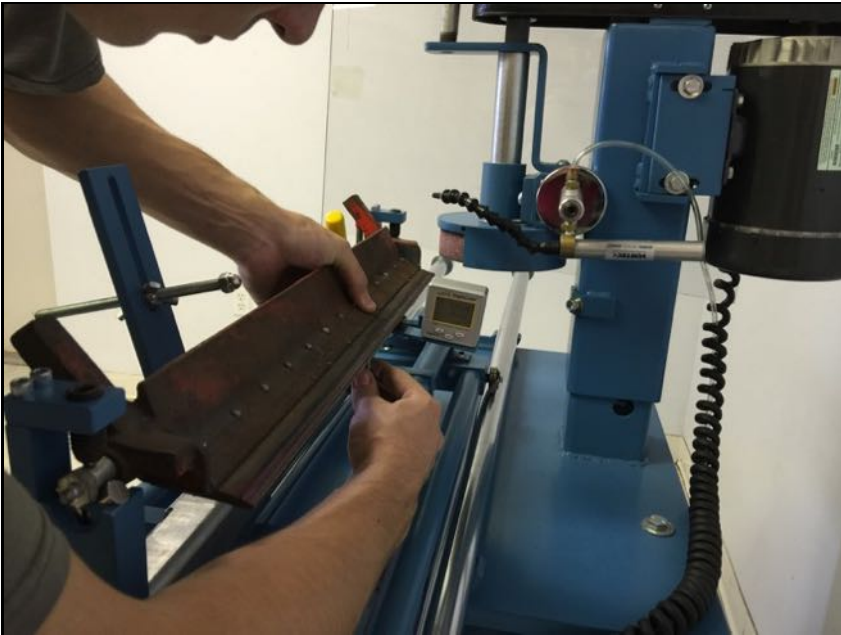


Place the bed knife on to the v-supports.



3.3 Setting the top face relief angle

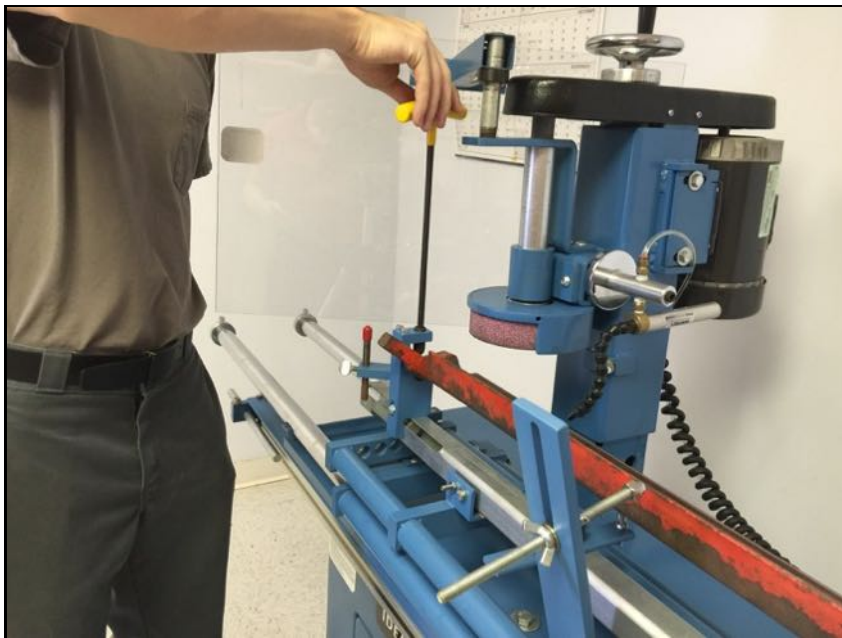
Place the angle finder on the top of the v-support bar and reset it to zero.



Place the angle finder bracket with the angle finder on the bottom of the bed knife.

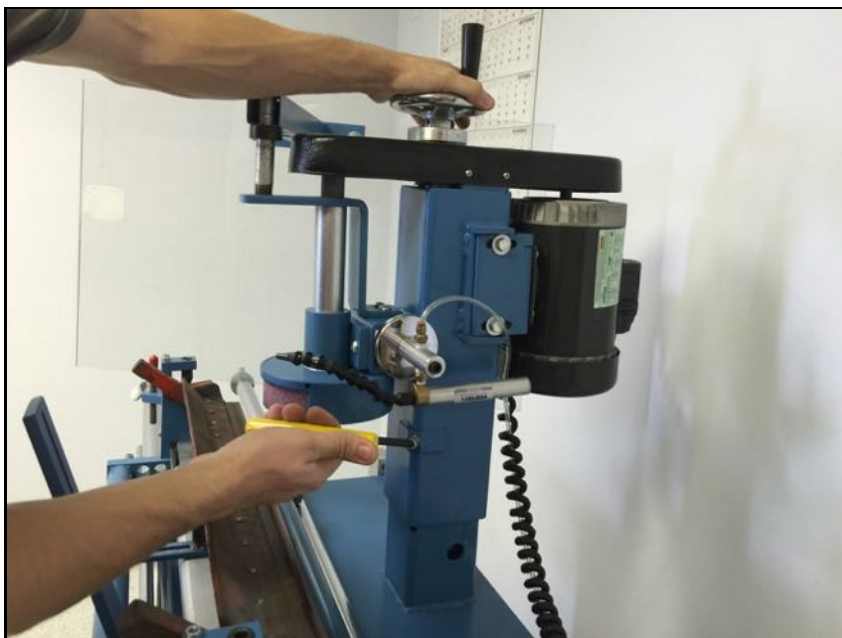


Adjust the center bottom support until you have the desired top face angle then lock the center support.



Tighten the v-support clamps.

WARNING-Make sure all clamps are tight. Loose clamps can allow bed knife to move and damage either the bed knife or grinding wheel.



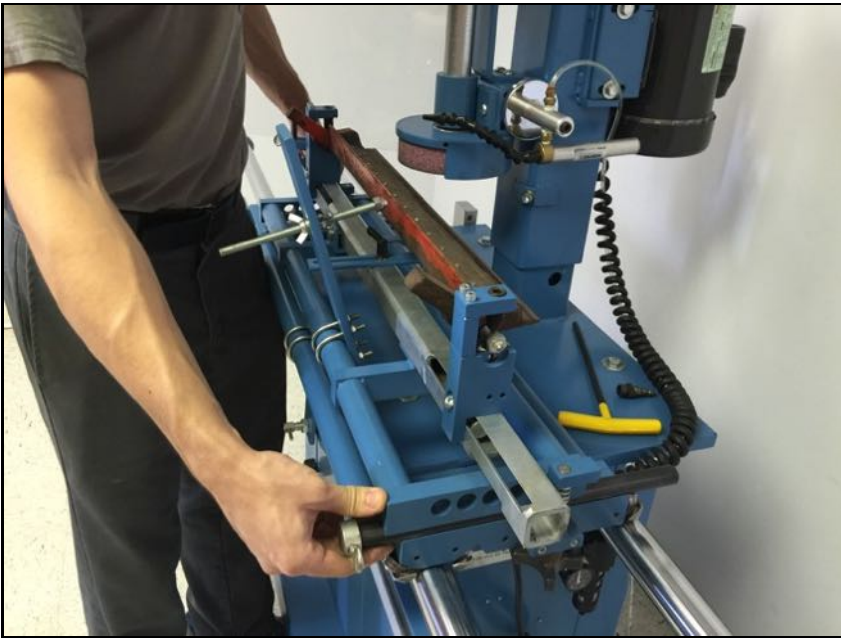
3.4 Positioning the pallet

If you need to move the grinding head up or down quickly, you can loosen the head clamp bolt. When you retighten the head clamp bolt, it should be just snug.

INFO - Do not over tighten the head clamp bolt as it will limit head movement and may cause damage to the head.



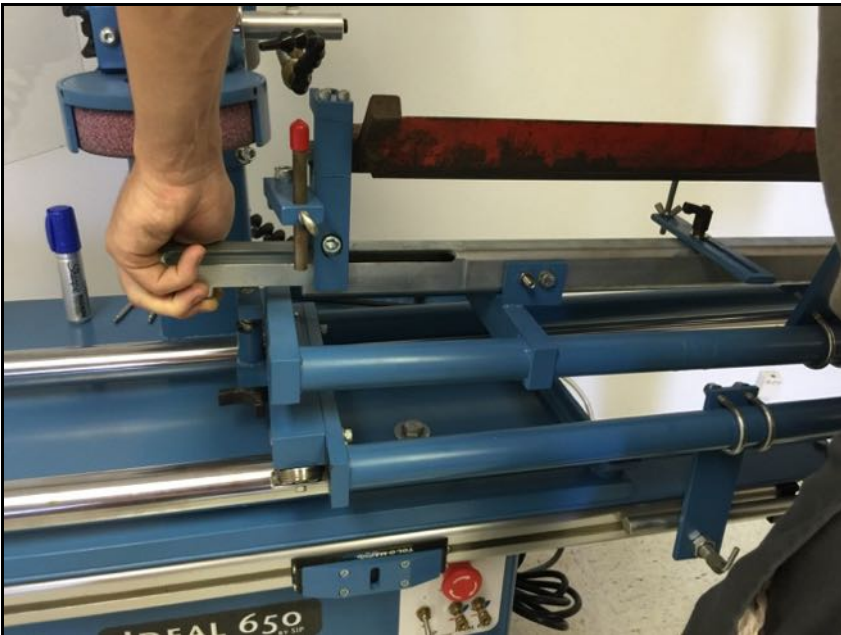
To position the bed knife under the stone, first unclamp the pallet at both ends.



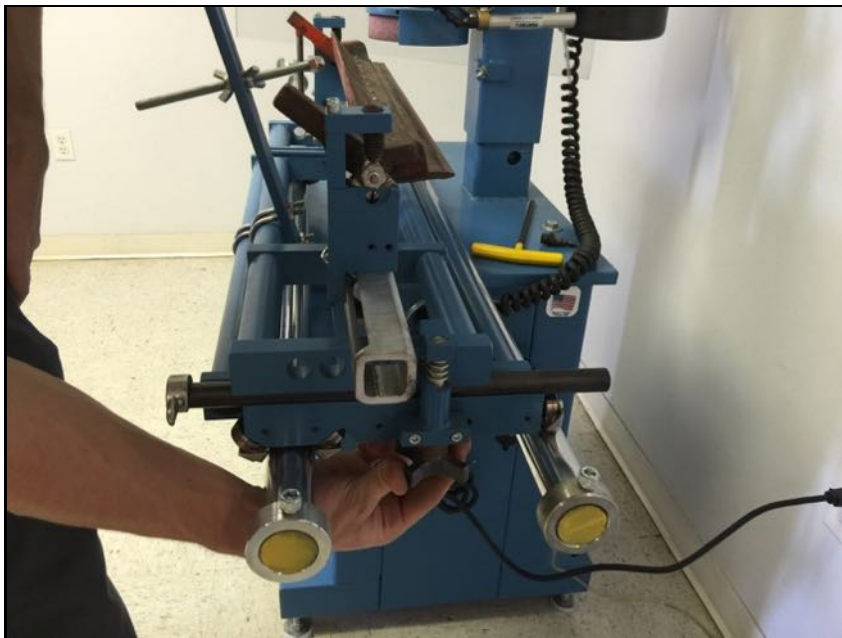
Slide the pallet up or back until ...



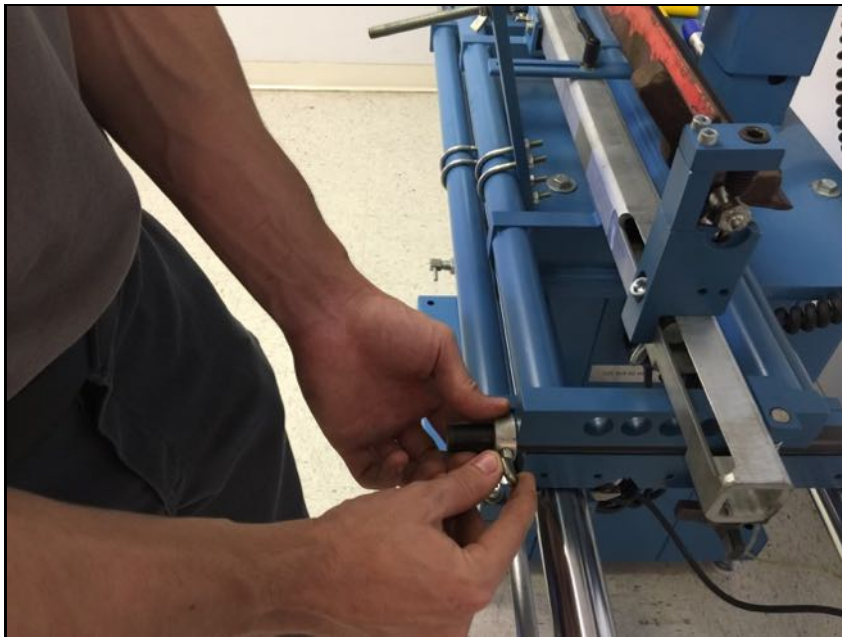
... you have the proper overlap of the grinding stone.



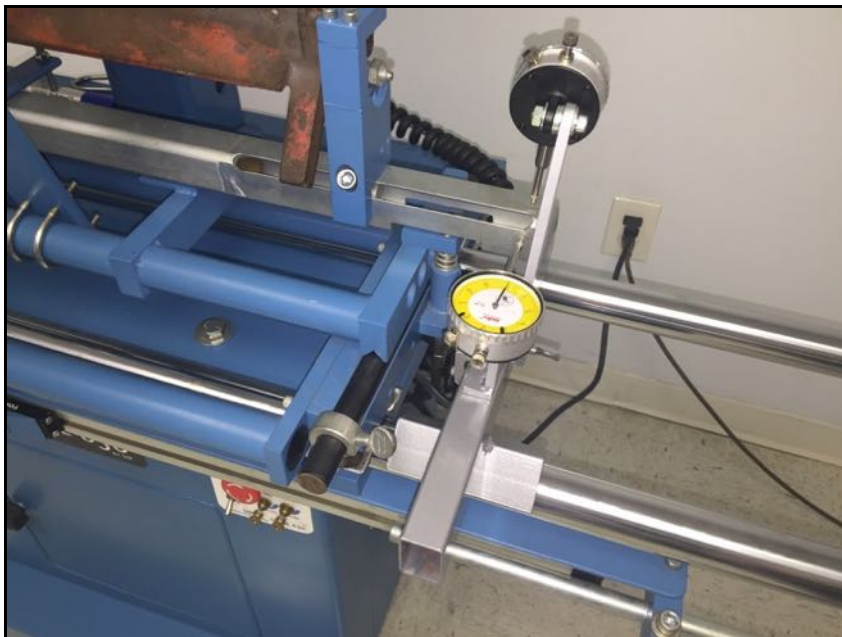
Lift and rock the end of the pallet opposite the v-groove to properly seat the pallet.



Reclamp the pallet to the carriage.

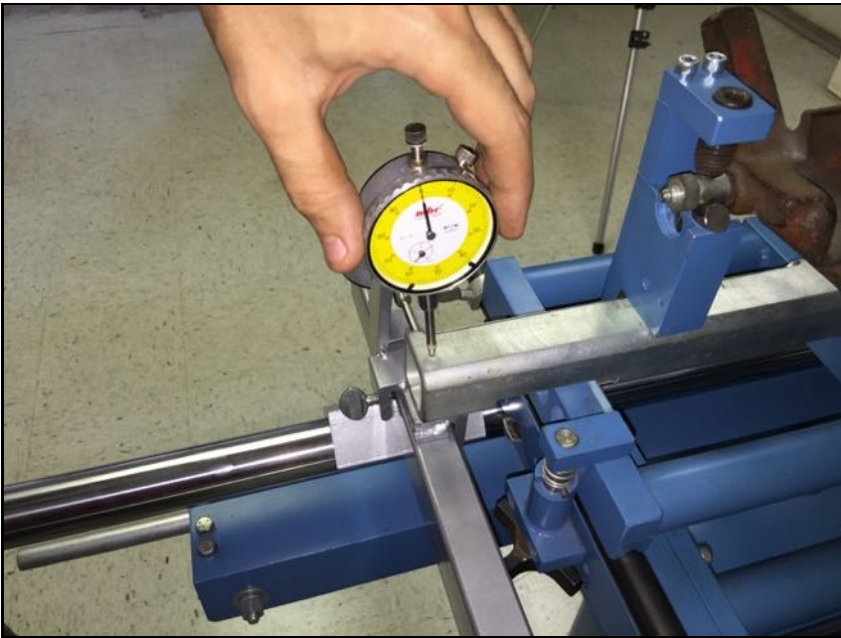


Set the pallet position stop.

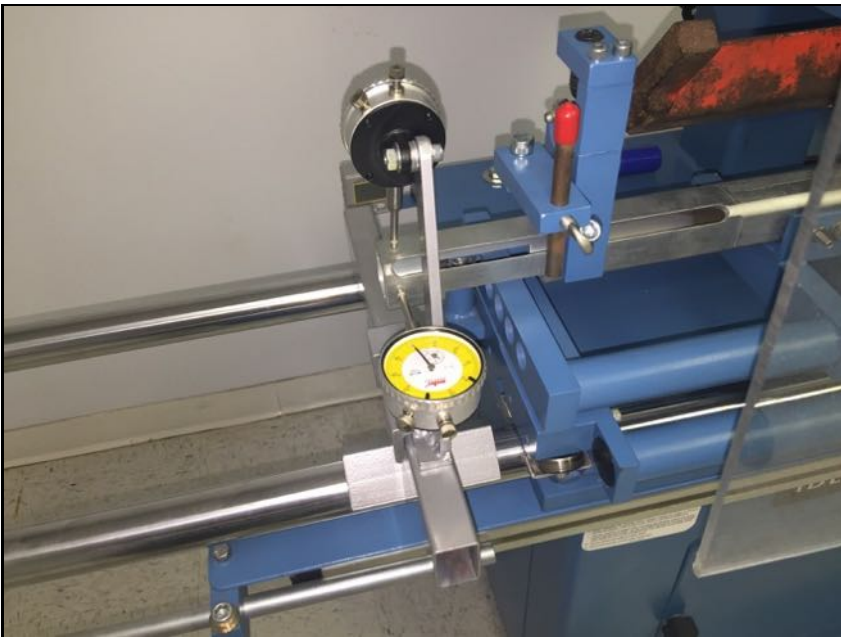


3.5 Checking the pallet alignment

Use the pallet gauge bar to make sure that the pallet is properly positioned. Set the gauge bar at one end and position the indicators so they just touch the top and front of the v-support bar.



Set the indicators to zero.



Move the gauge bar to the other end of the v-support bar and check to see that your indicator readings are within about .002".

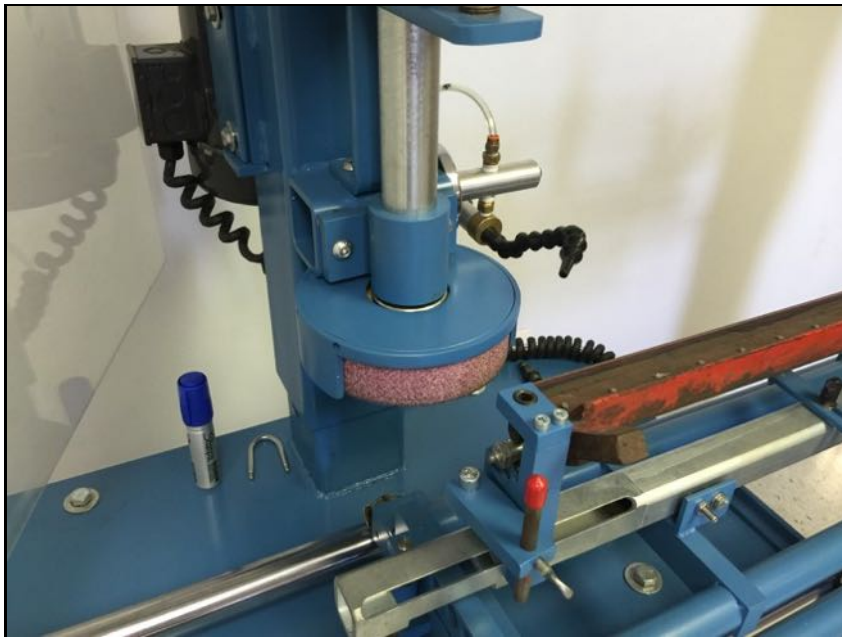


If they are not, you can loosen the pallet clamp, nudge the pallet and then reclamp the pallet.

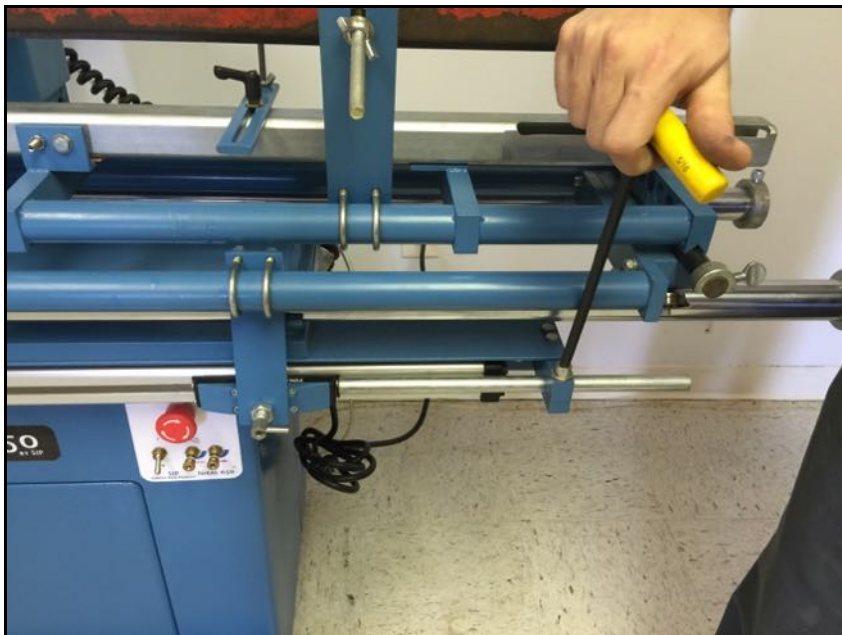


3.6 Setting the travel stops

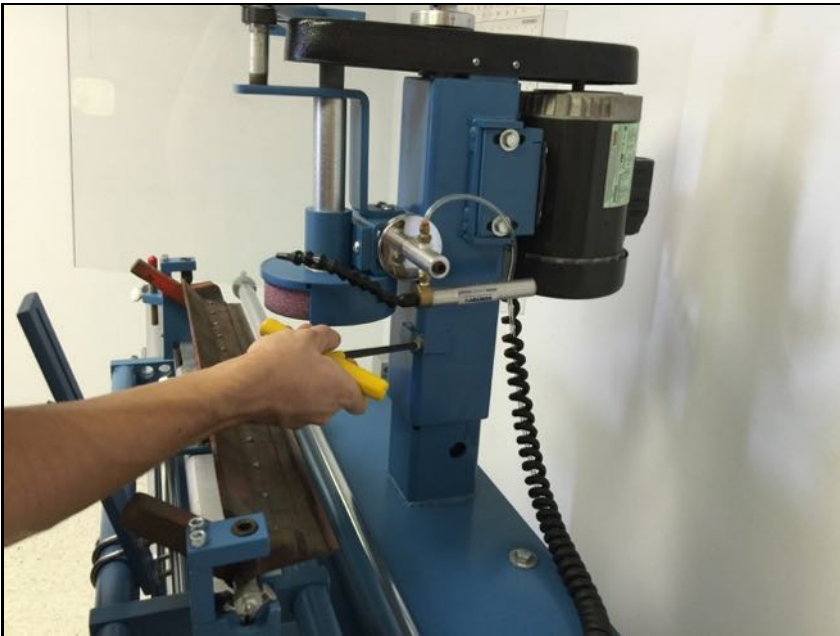
If you have the automatic version, lock the carriage into the traverse cylinder.



Move the bed knife off one end of the grinding wheel until it just clears.



Loosen the stop clamp and position the stop bar until it just touches the cylinder carriage. Move the bed knife off the other end and repeat setting the stop.



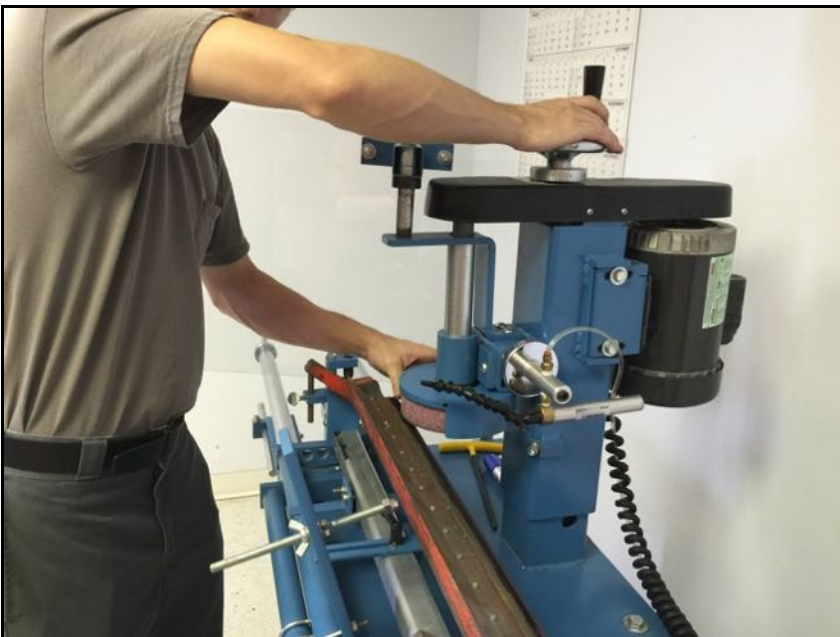
3.7 Grinding the top face

Make sure the head clamp bolt is just snug.

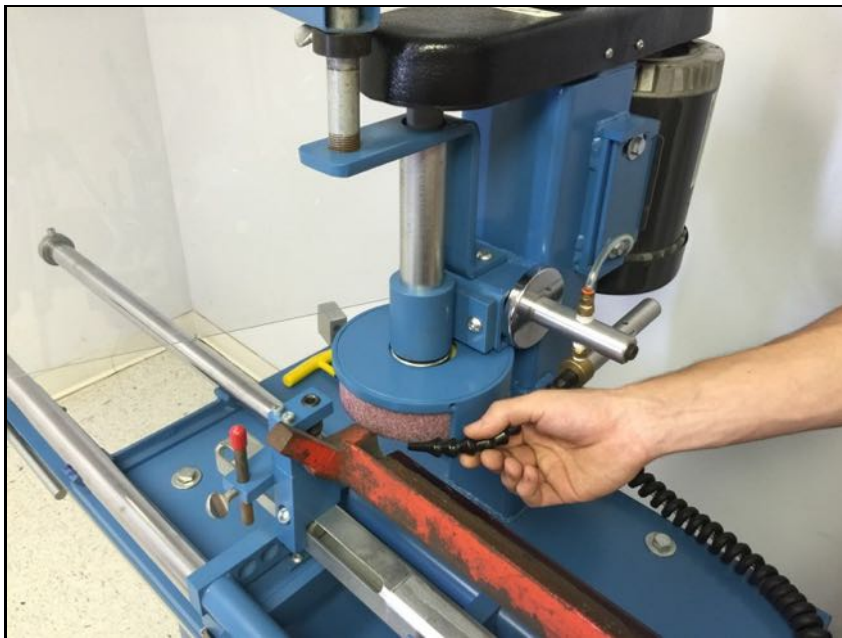
INFO - Do not over tighten the head clamp bolt as it will limit head movement and may cause damage to the head.



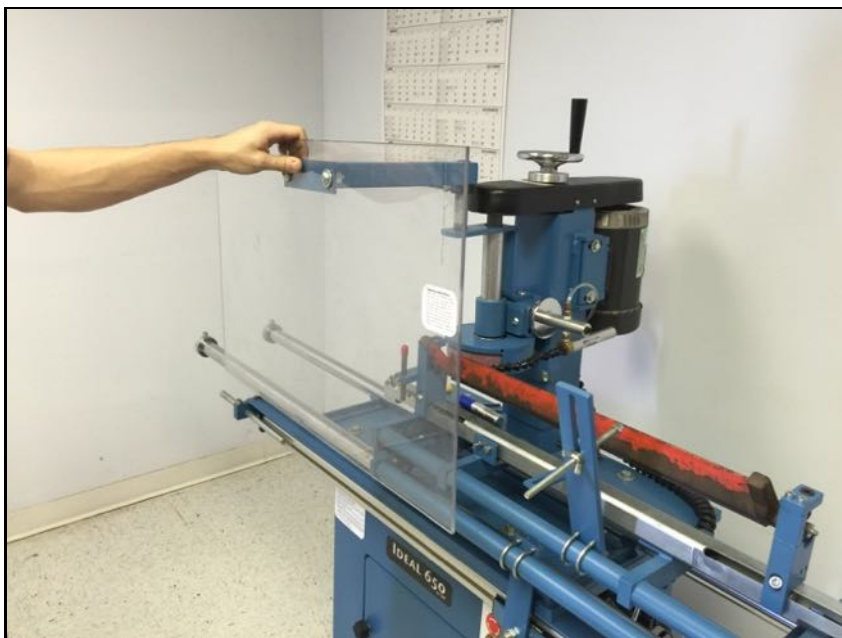
Mark the top face with the blue marker.



Move the grinding head until the stone barely touches the top face.



Position the cooling nozzle so it points at the bed knife near where it contacts the stone.



Swing the shield into place.

WARNING-Always close shield when grinding.



Turn on the grinding motor.



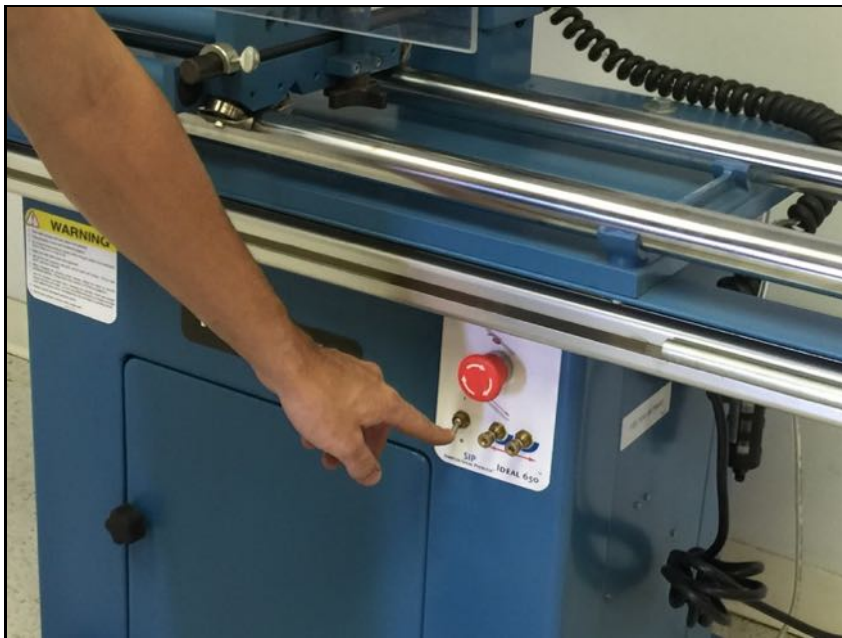
Turn on the carriage travel (optional).



Adjust the carriage travel speeds (optional).



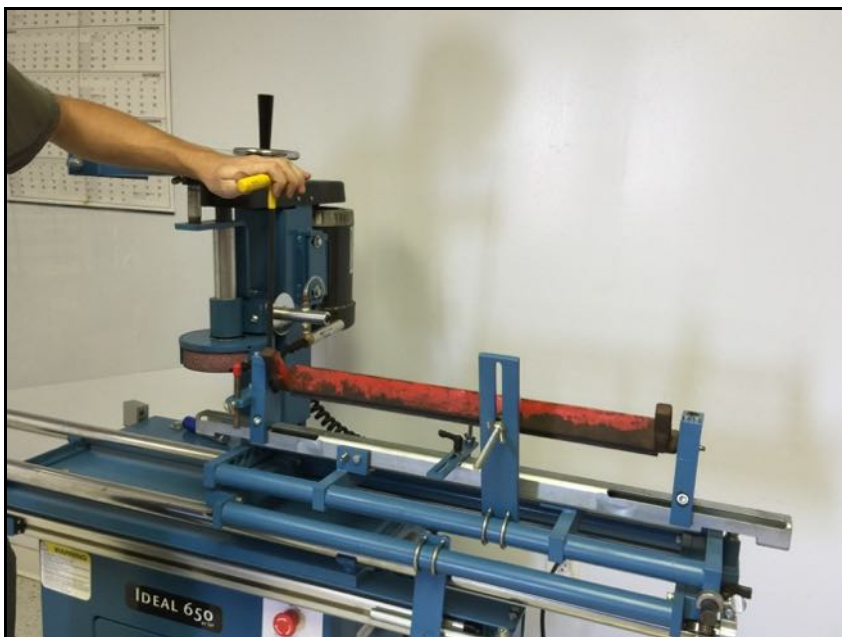
Carefully infeed the grinding head as needed until you have completed the top face. Make sure you let the bed knife grind until you have light, even sparking across the whole bed knife. Pay close attention to the ends as they will flex more and take longer to even out.



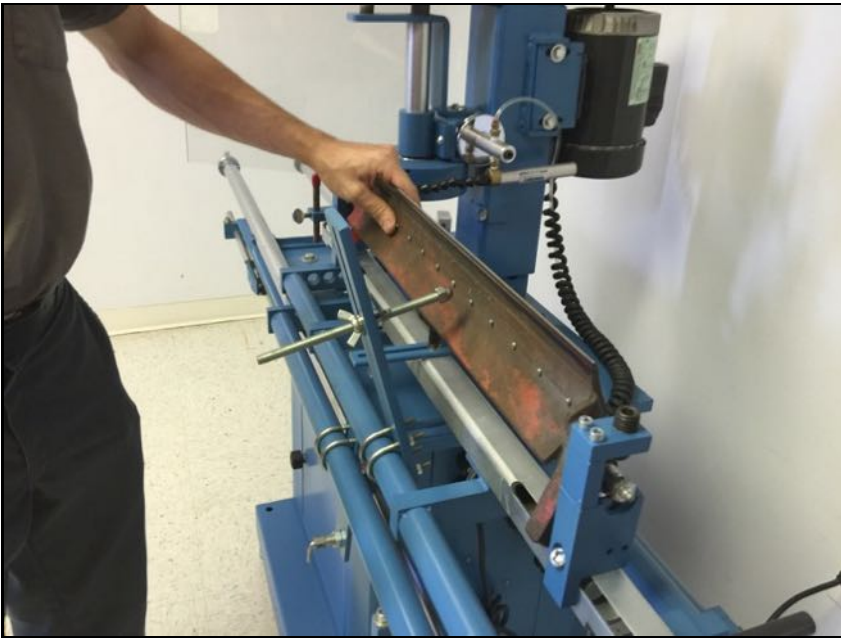
With the bed knife off the end of the grinding stone, turn off the carriage travel first (optional)...



...then the grinding motor.

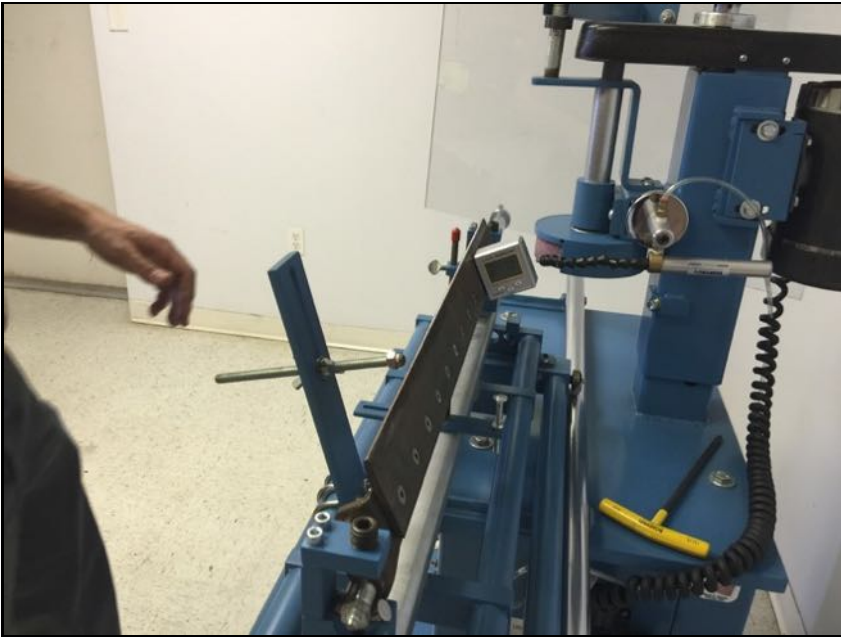


Remove the bed knife and replace it with the next. All of the adjustments should be set and you should be ready to grind. Once you have finished the top face of all of your bed knives, you can change over to the front face.

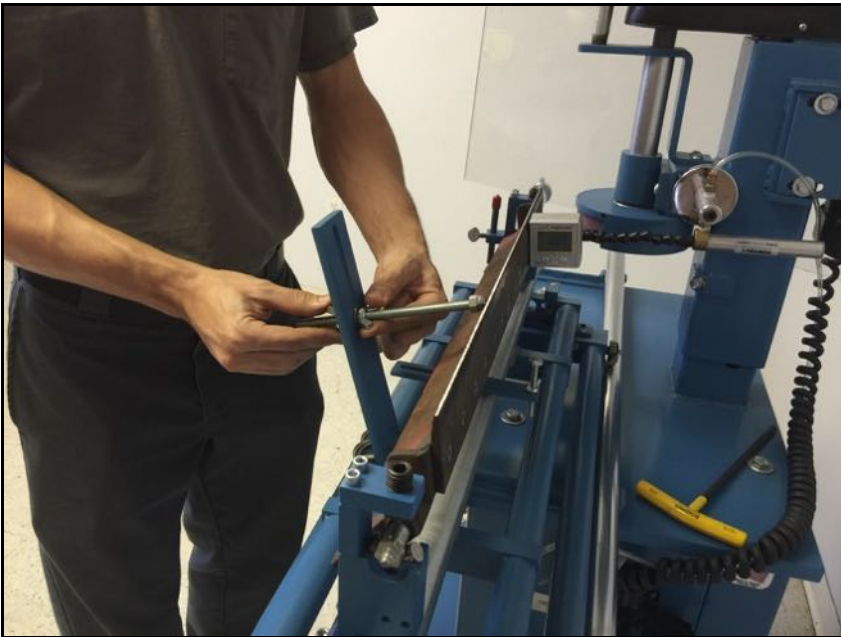


3.8 Setting the front face angle

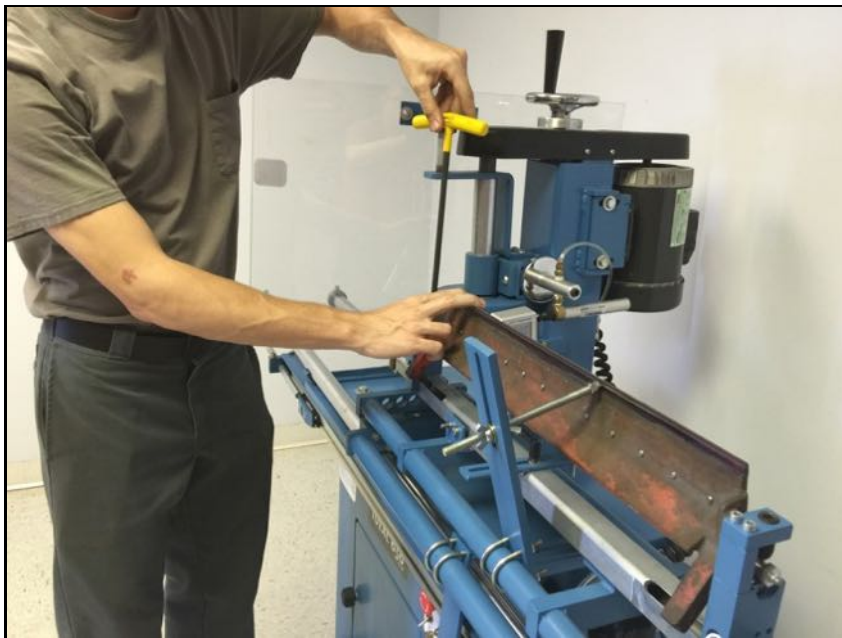
Place your bed knife in the v-support and rotate it up to position it for grinding the front face.



Place the angle finder on the bottom of the bed knife.

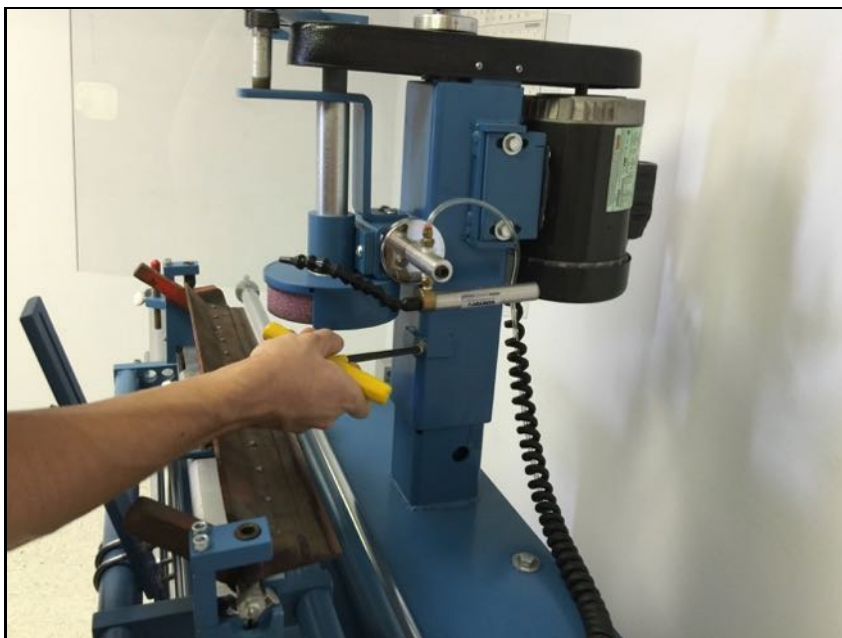


Adjust the center back support until you have the desired front face angle then lock the center support.



Tighten the v-support clamps.

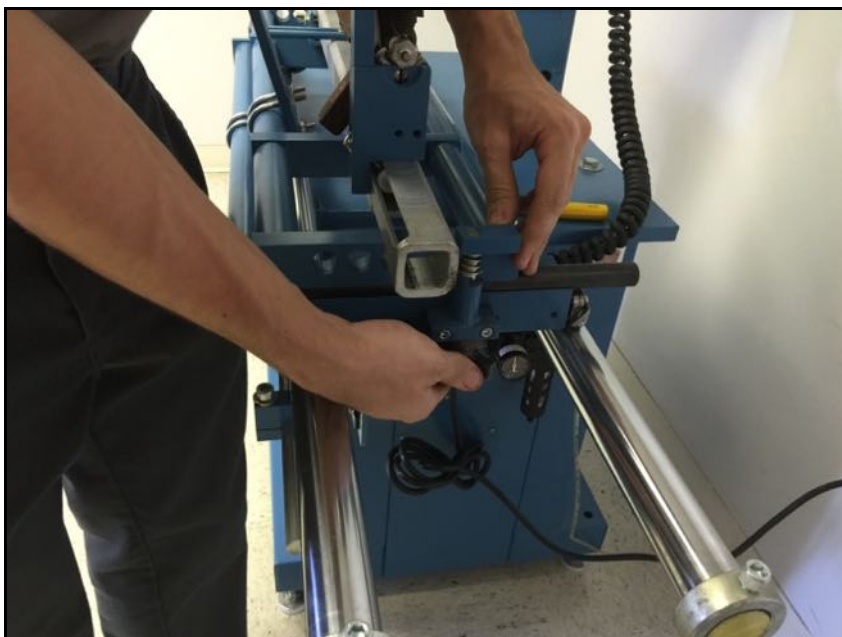
WARNING-Make sure all clamps are tight. Loose clamps can allow bed knife to move and damage either the bed knife or grinding wheel.



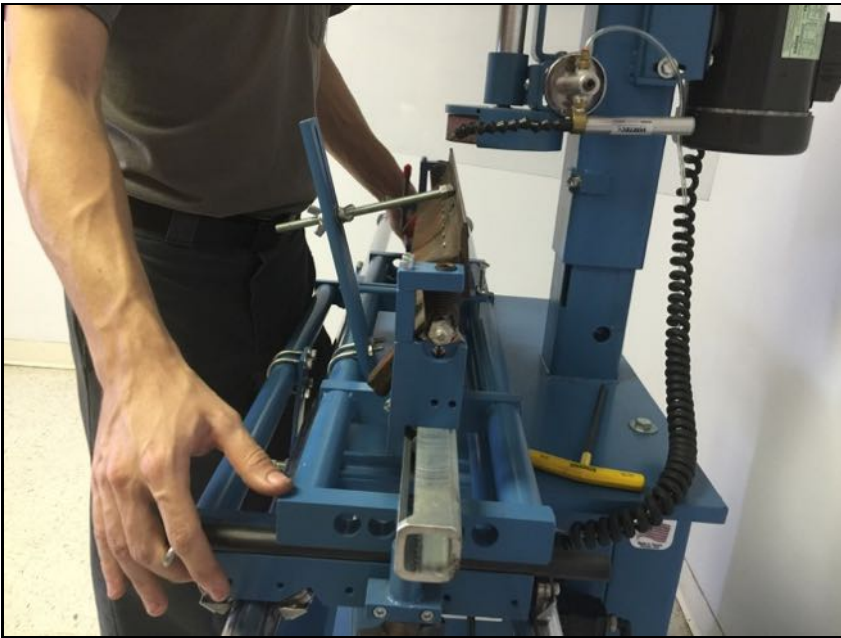
3.9 Positioning the pallet

If you need to move the grinding head up or down quickly, you can loosen the head clamp bolt. When you retighten the head clamp bolt, it should be just snug.

WARNING - Do not over tighten the head clamp bolt as it will limit head movement and may cause damage to the head.



To reposition the bed knife under the stone, first unclamp the pallet at both ends.



Slide the pallet up or back until you have the proper overlap of the grinding stone.



Lift and rock the end of the pallet opposite the v-groove to properly seat the pallet.

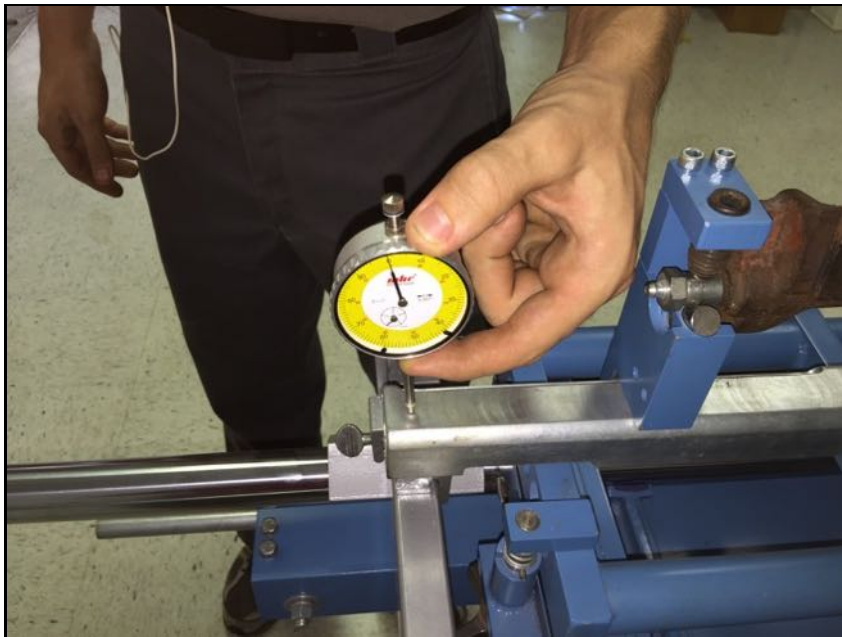


Reclamp the pallet to the carriage.

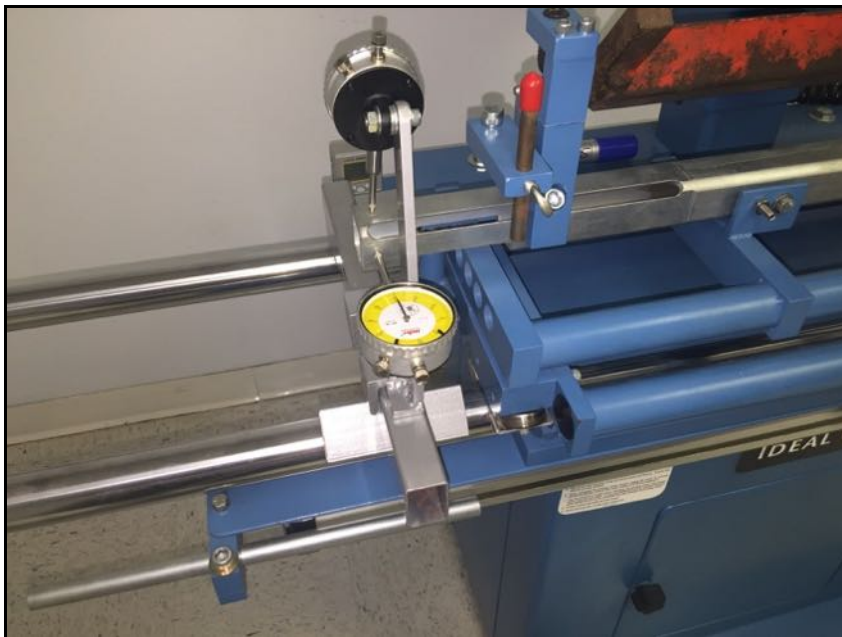


3.10 Checking the pallet alignment

Use the pallet gauge bar to make sure that the pallet is properly positioned. Set the gauge bar at one end and position the indicators so they just touch the top and front of the v-support bar.



Set the indicators to zero.



Move the gauge bar to the other end of the v-support bar and check to see that your indicator readings are within about .002".

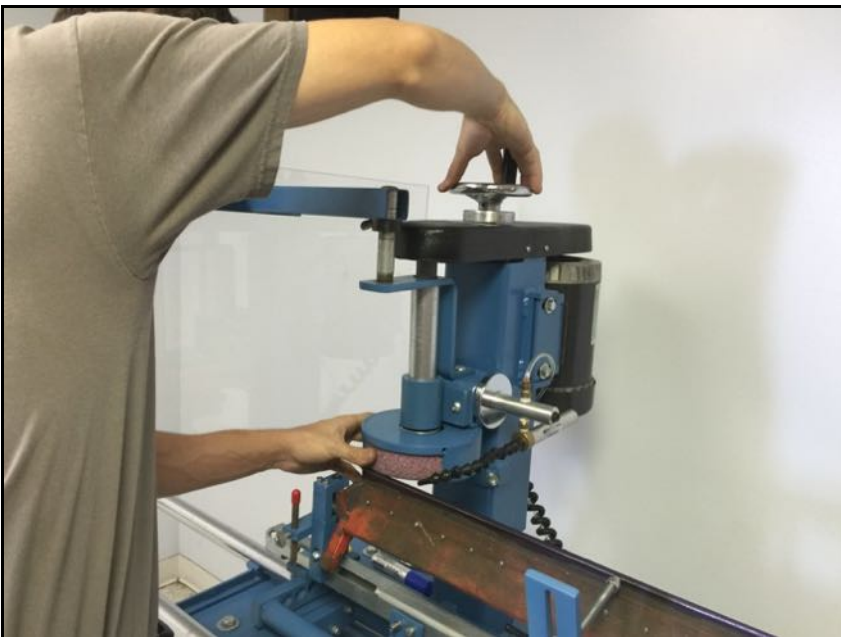


If they are not, you can loosen the pallet clamp, nudge the pallet and then reclamp the pallet.

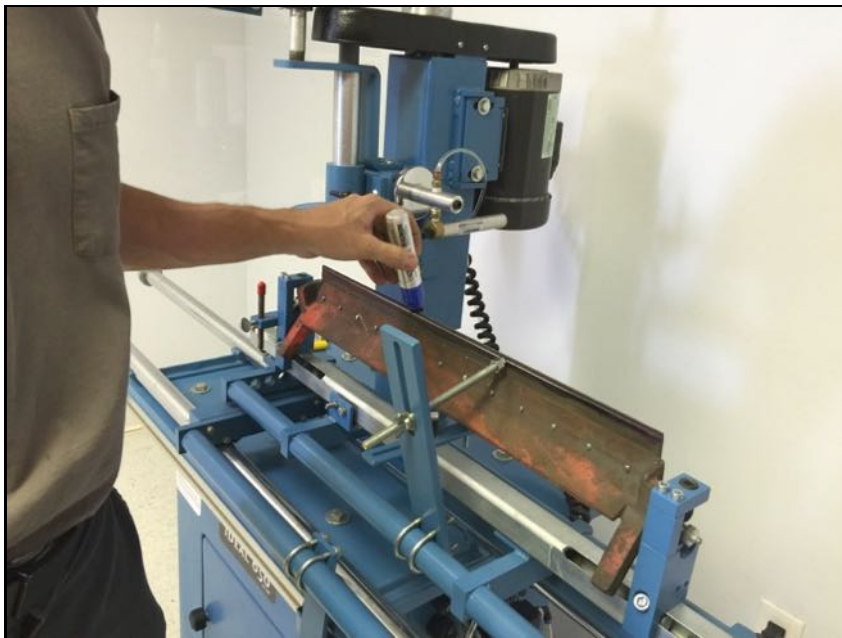


3.11 Grinding the front face

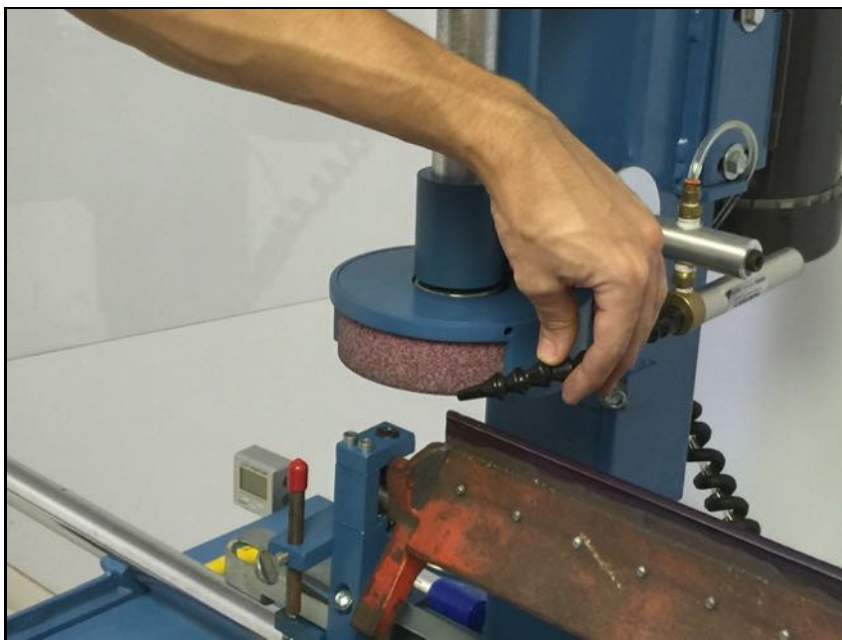
Move the bed knife off one end of the grinding wheel until it just clears and recheck the travel stops.



Move the grinding head until the stone barely touches the front face.



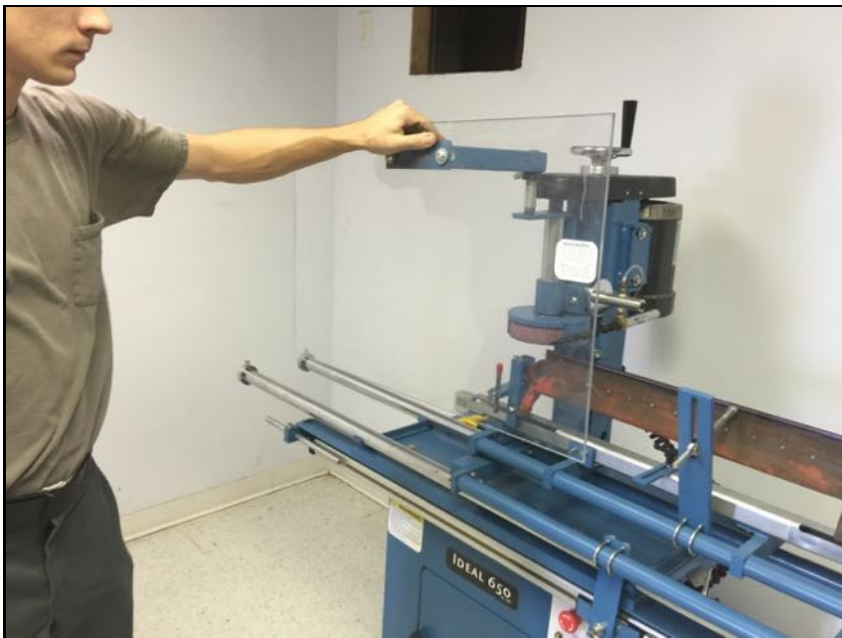
Mark the front face with the blue marker.



Position the cooling nozzle so it points at the bed knife near where it contacts the stone.

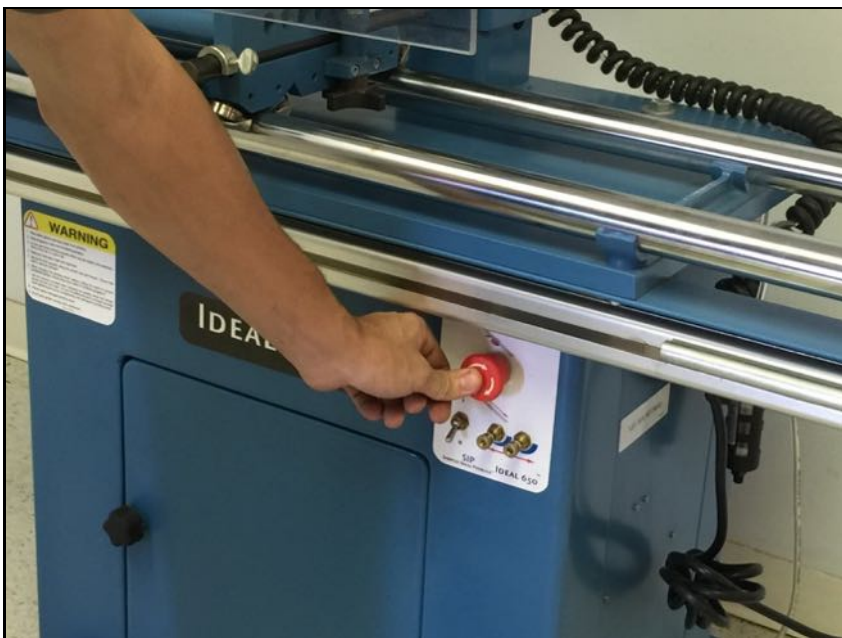


If you have the automatic version, lock the carriage into the traverse cylinder.



Swing the shield into place.

WARNING-Always close shield when grinding.



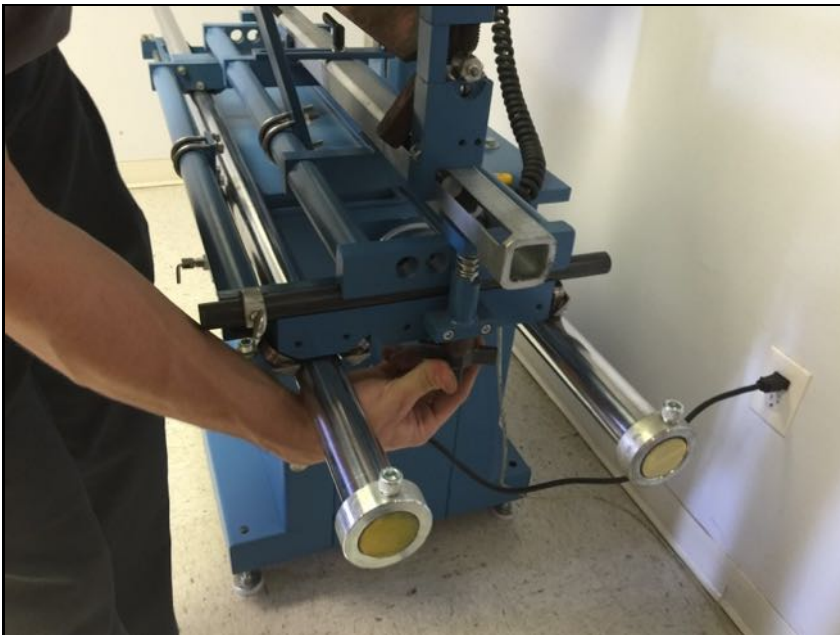
Turn on the grinding motor then the carriage travel (optional).



Carefully infeed the grinding head as needed until you have completed the front face. Make sure you let the bed knife grind until you have light, even sparking across the whole bed knife.



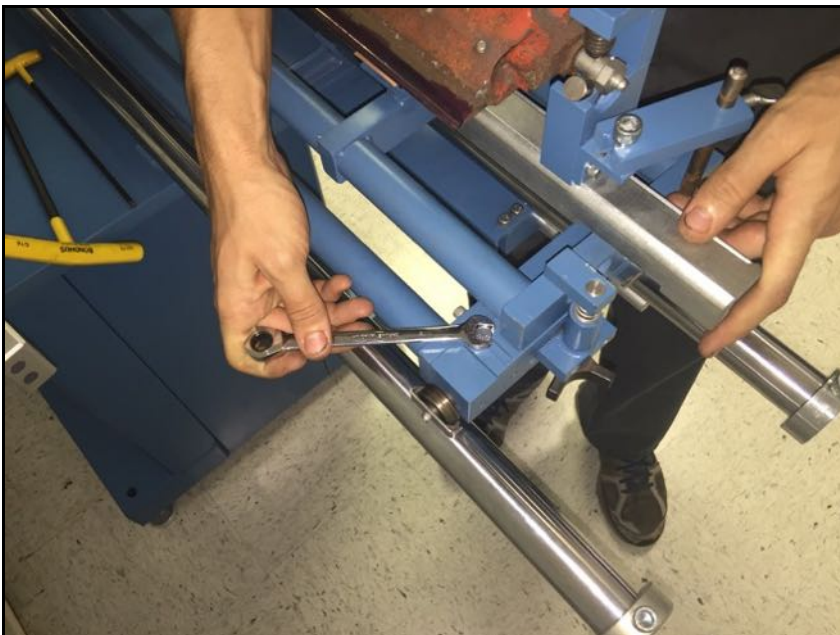
With the bed knife off the end of the grinding stone, turn off the carriage travel first (optional) then the grinding motor.



3.12 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



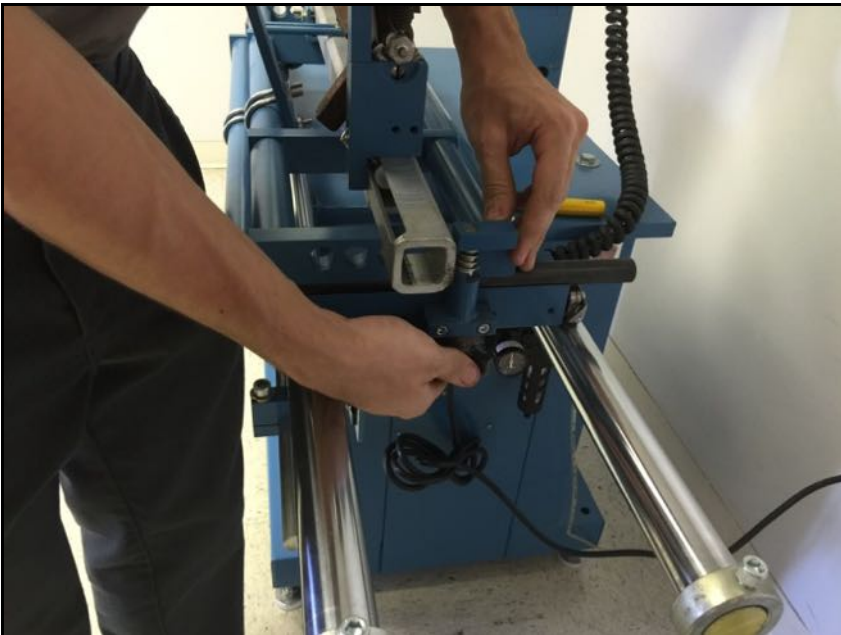
Then loosen the two screws on the left end of the carriage which hold the vertical alignment pad.



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

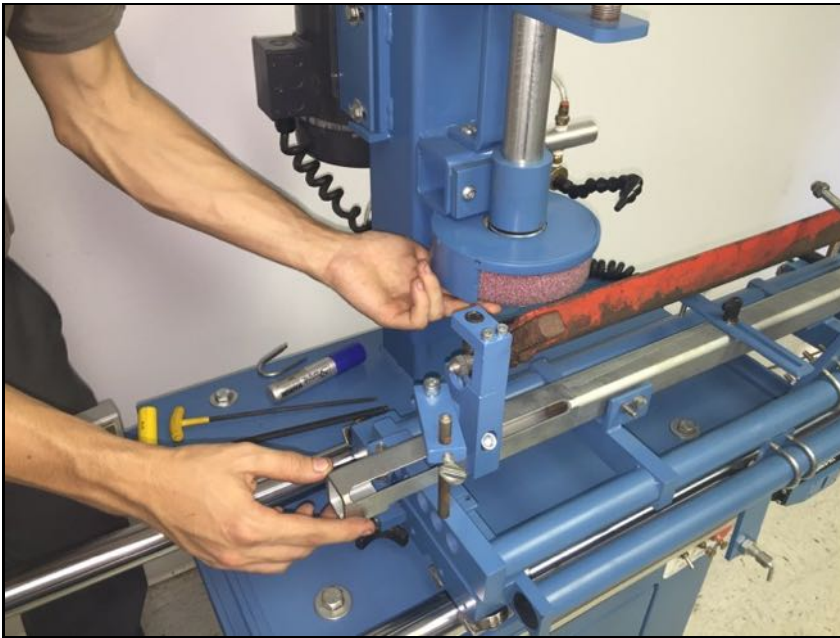


Adjust the vertical adjusting screw until the top touches as evenly as possible across the top face



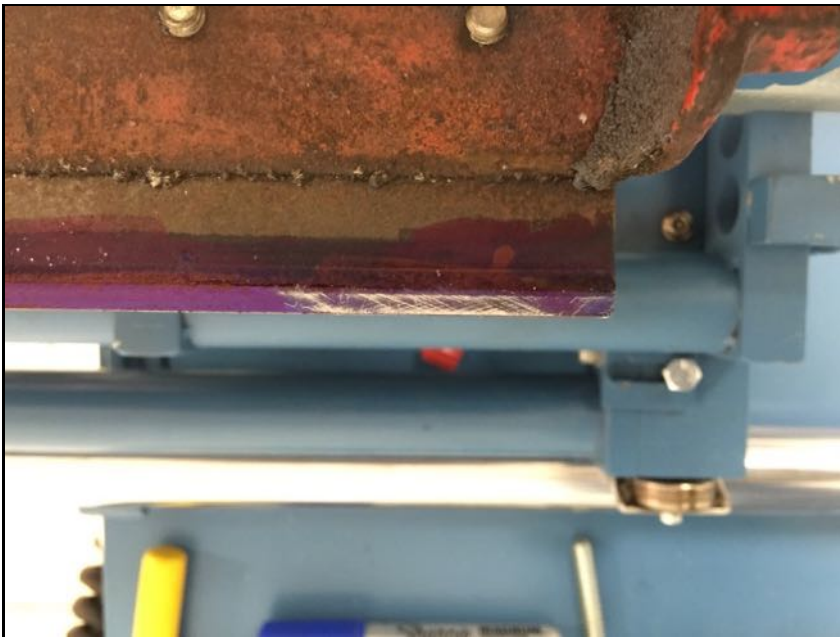
Relock the pallet clamps.

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



3.13 Checking the angles

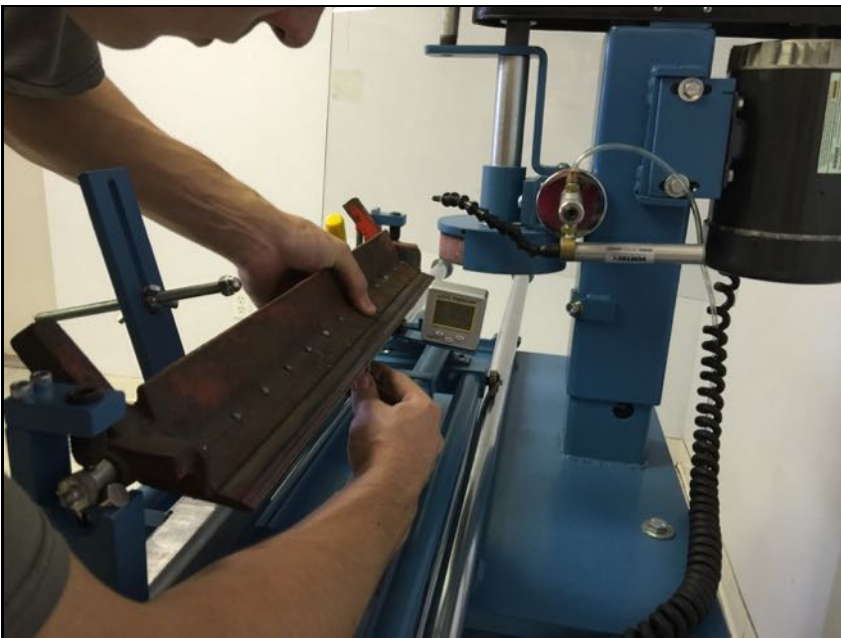
Apply either permanent marker or layout fluid to surface to be checked, then scratch the blade with the grinding wheel.



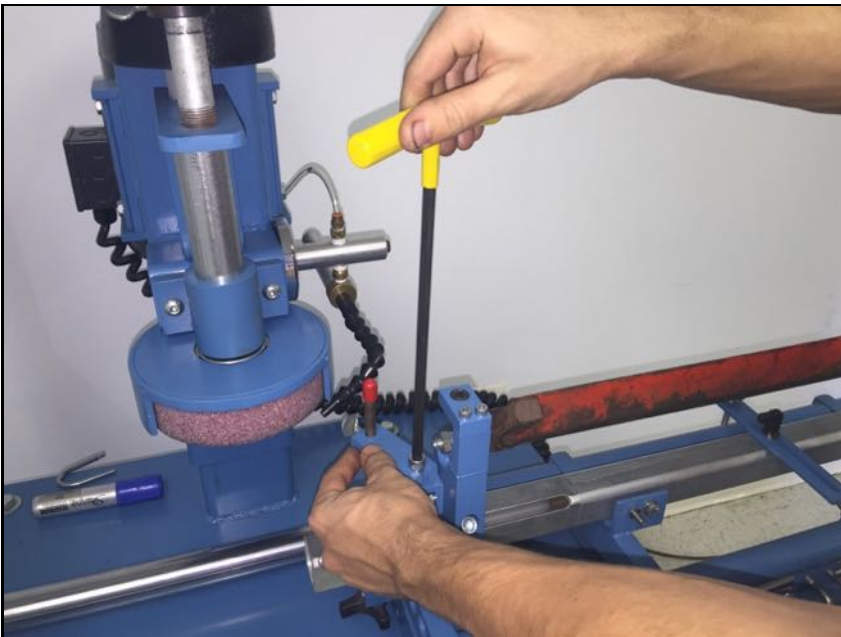
If you are grinding a new blade, the scratch should be fairly even from front to back.



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



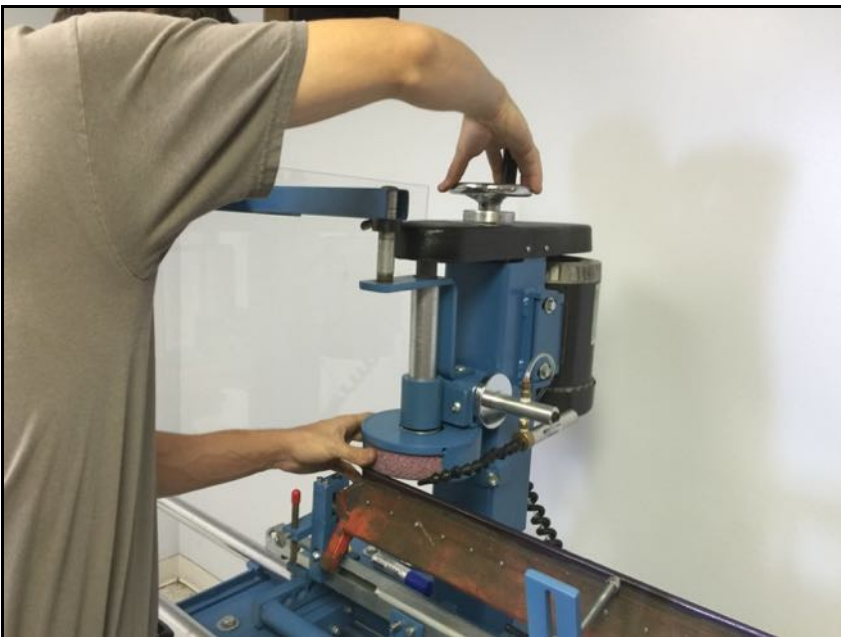
If the scratch is heavy on the front of either a new or used blade, then you may need to adjust the angle to compensate or dress the grinding wheel.



3.14 Dressing the stone

Reposition the diamond dresser so that it aligns with the stone.

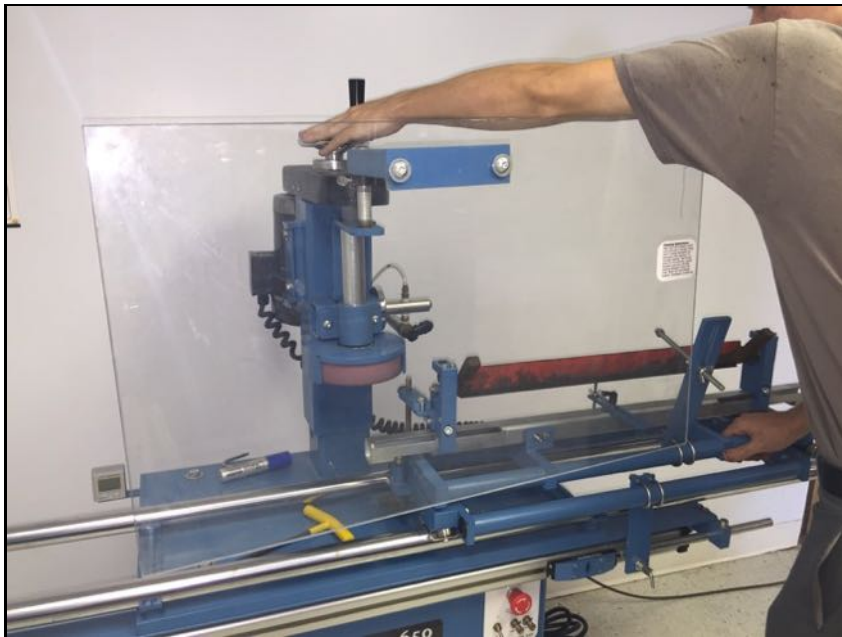
DANGER-Always close shield when dressing the stone.



Move the top head up or down until ...

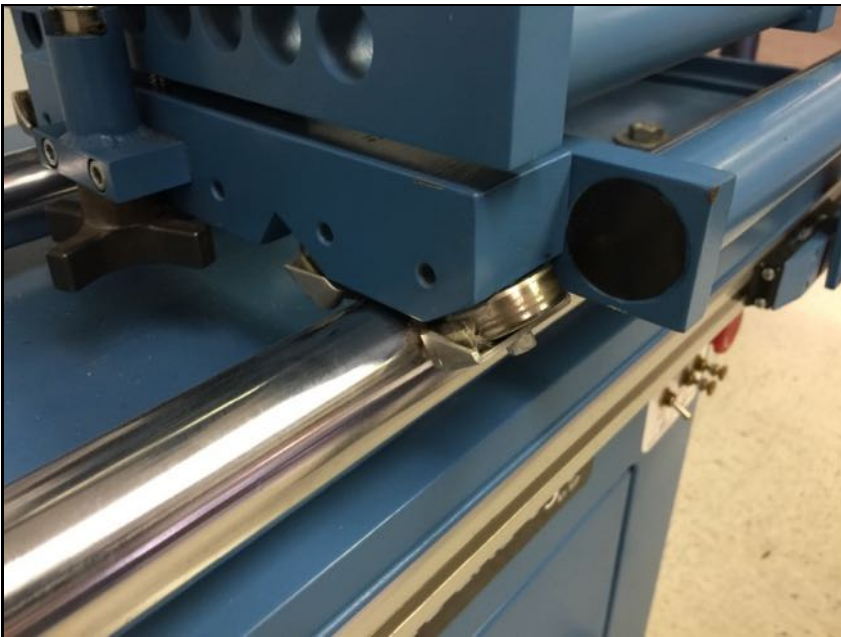


...the diamond dresser just clears the stone.



Turn on the grinding motor, then infeed the grinding head and move the carriage back and forth until no sparks appear. Turn off the grinding motor.

INFO-Only dress the right half of the stone in order to maintain proper grinding wheel shape.

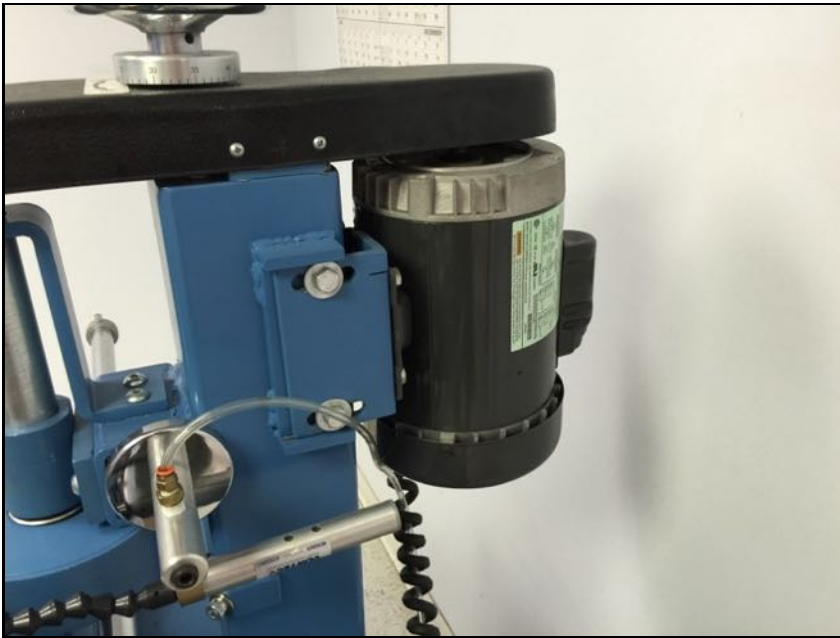


4.0 General maintenance

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.



4.1 Replacing track shaft wipes

Remove track shaft wipe.



Peel the old wipe off, clean the surface with alcohol and adhere a new piece of wipe material.



4.2 Mounting grinding wheel

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.



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!