Forward this manual to all the operators.
Failure to operate this equipment as directed
may cause injury or death.

INSTALLATION AND OPERATION MANUAL

C9450

Brake Rotor/Drum Lathe

For resurfacing cars and SUV drums and rotors.

Keep this operation manual near the machine at all times. Make sure that ALL USERS read this manual.

Shipping damage claims

When this equipment is shipped, title passes to the purchaser upon receipt from the carrier. Consequently, claims for the material damaged in shipment must be made by the purchaser against the transportation company at the time shipment is received.

Be safe

Your new brake lathe was designed and built with safety in mind. However, your overall safety can be increased by proper training and thoughtful operation on the part of the operator. DO NOT operate or repair this equipment without reading this manual and the important safety instructions shown inside.

Contents

Failure to follow danger, warning, and caution instructions may lead to serious personal injury or death to operator or bystander or damage to property.

Do not operate this machine until you read and understand all the dangers, warnings and cautions in this manual.

OPERATOR PROTECTIVE EQUIPMENT

Personal protective equipment helps make brake service safer. However, equipment does not take the place of safe operating practices. Always wear durable work clothing during service activity. Shop aprons or shop coats may also be worn. However loose fitting clothing should be avoided. Tight fitting leather gloves are recommended to protect operators hands when handling brake parts. Sturdy leather work shoes with steel toes and oil resistant soles should be used by all service personnel to help prevent injury in typical shop activities. Eye protection is essential during rotor/drum resurfacing. Safety glasses with side shields, goggles or face shields are acceptable. Back belts provide support during lifting activities and are also helpful in providing operator protection. Consideration should also be given to the use of hearing protection if brake service activity is performed in an enclosed area, or if noise levels are high.

Definitions of Hazard Levels

Identify the hazard levels used in this manual with the following definitions and signal words:

Watch for this symbol: It means: Immediate hazards , which will result in severe personal injury or death.

It Means: Hazards or unsafe practices, which could result in severe personal injury or death.

Watch for this symbol: It Means: Hazards or unsafe practices, which may result in minor personal injury or product or property damage.

Watch for this symbol! It means BE ALERT! Your safety, or the safety of others, is involved!

Owner's Responsibility

To maintain machine and user safety, the responsibility of the user is to read and follow these instructions:

1. Follow a11 installation instructions and make sure installation conforms to all applicable Local, Country's Law, Regulations and Electrical Codes.

2. Carefully check the unit for correct initial function.

3. Read and follow the safety instructions. Keep them readily available for machine operators.

4. Make certain all operators are properly trained, know how to safely and correctly operate the unit, and are properly supervised.

5. Allow unit operation only with all parts in place and operating safely.

6. Carefully inspect the unit on a regular basis and perform all maintenance as required.

7. Service and maintain the unit only with authorized or approved replacement parts.

8. Keep all instructions permanently with the unit and all decals / labels / notices on the unit clean and visible.

Warning Instructions

1. This equipment incorporates parts such as snap switches and power receptacles which tend to produce arcs or sparks. Therefore, when located in a service facility, the unit should be in a room or enclosure provided for the purpose, or should be at least 18 " or more above floor to minimize the risk of igniting fuel vapors.

2. Eye and face protection requirements:

“Protective eye and face equipment is required to be used where there is a reasonable probability of injury that can be prevented by use of such equipment.”

Protective goggles, safety glasses, or a face shield must be provided by the purchaser / user and worn by the operator of the equipment. Make sure all eye and face safety precautions are followed by the operator(s). Keep bystanders out of the area.

3. Do not remove any safety equipment, belt guards, or control switches or shut-off devices.

4. Make sure drums and rotors are properly and squarely mounted before starting lathe, and that a11 parts are secure.

5. Make sure drums and rotors are clean and mounted properly before attaching the lathe to the caliper.

6. Do not overload the lathe. Read and understand the lathe specifications. Overloading is poor machine tool practice, shortens the life of the lathe, and could cause a failure resulting in personal injury.

7. Check the damaged parts carefully. Before further use of the lathe, a guard or other part that is damaged should be carefully checked. Immediately replace all the damaged, missing, or non-functional parts. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect operation. Guards and other parts that are damaged should be properly repaired or replaced before lathe is used again.

8. Always feed the blade or cutter into the work and against the direction of rotation. Cutters and tool bits are designed to begin the cut from near the center of the rotor to the outer edge. Do not attempt to cut from the outside edge into the center.

9. Never leave the brake lathe running unattended. Turn the power off. Do not leave the brake lathe until the power switch is turned to the OFF position.

10. Never use compressed air to blow and clean chips. Chips and dust may be driven between machined parts and into bearings, causing undue wear. They may also contact persons in the area causing personal injury.

Before You Begin

Receiving

The shipment should be thoroughly inspected as soon as it is received .The signed bill of lading is acknowledgement by the carrier of receipt in good condition of shipment covered by our invoice.

If any of the goods called for on this bill of lading are shorted or damaged, do not accept them until the carrier makes a notation on the freight bill of the shorted or damaged goods. Do this for your own protection.

Notify the carrier at once if any hidden loss or damage is discrovered after receipt and request the carrier to make an inspection. If the carrier will not do so, prepare a signed statement to the effect that you have notified the carrier (on a specific date) and that the carrier has failed to comply with your request.

It is difficult to collect for loss or damage after you have given the carrier a clear receipt.

File your claim with the carrier promptly. Support your claim with copies of the bill of lading, freight bill, invoice , and photographs, if available.

Our willingness to assist in every possible manner does not make us responsible for collection of claims or replacement of lost or damaged materials.

Electrical Requirements

This lathe is shipped without a plug and needs the user to connect power according to the instructions on the panel. The lathe must be properly grounded to protect the operator from shock. The lathe should be equipped with a grounding type plug to fit the proper grounding-type receptacle. Should an extension cord with grounding plug be required, use the corresponding grounding receptacle properly rated to handle this electrical power tool only. Do not modify a cord or plug to match a receptacle; have a qualified electrician install an appropriate outlet to match the lathe requirements. Repair or replace any worn or damaged power cords immediately.

Important Safety Instructions

Before operating the lathe, review the warning information on the lathe and the cautions, warnings and dangers in this manual. Also review the following general safety instructions.

When using equipment, basic safety precautions should always be followed, including the following:

1. Keep guards in place and in working order.

2. Keep hands clear of moving parts at all times. Keep hair, loose clothing, neckties, shop rags, jewelry, fingers, and all parts of body away from moving parts.

3. Always use safety glasses. Everyday eyeglasses only have impact resistant lenses, they are not safety glasses. Safety glasses, goggles, or a face shield will help protect the operator from injury. Use a face shield and dust mask during all operations.

4. Secure the work properly to the unit for setup and tool bit positioning before attempting to make first cut. Do not attempt to touch a drum or rotor with your hands with the lathe in operation.

5. Remove adjusting keys and wrenches from the tool before turning it on.

6. Maintain tools with care. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

7. Use the right tool. Don't force a tool or an attachment to do a job for which it was not designed. The use of improper accessories may cause risk of injury to operator or bystanders. Use only as described in this manual. Use only manufacturer’s recommended attachments.

8. Keep work area clean. Cluttered areas and benches invite accidents.

9. Locate power cords safely. Do not let power cord come in contact with moving parts.

10. Reduce risk of fire. Do not operate equipment in near open containers of flammable liquids and their vapors.

11. Provide adequate ventilation when working on operating internal combustion engines. Vehicle exhaust must be vented from work area.

12. Dress properly. Keep loose clothing, gloves, neckties, shop rags or jewelry may get caught in moving parts. Non-slip footwear is recommended.

13. Always unplug equipment from electrical outlet when not in use. Never use the cord to pull the plug from the outlet. Grasp plug firmly and pull to disconnect.

14. Do not touch hot parts. Care must be taken as burns can occur from touching hot parts.

15. Properly maintain equipment. Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged--until it has been examined by a qualified serviceman.

16. Reduce risk of shock. Do not use on wet surfaces or expose to rain.

17. Keep children or unauthorized persons away. All bystanders should be kept completely away from the work area.

18. Remove power from the unit and disconnect tools before servicing and when changing accessories. Follow lock-out and tag-out procedures as required.

19. Avoid unintentional starting. Make sure the switch is in the OFF (O) position before plugging the machine in or performing any maintenance or service work.

20. Never stand or lean on a lathe. Serious injury could occur if the lathe is tipped or if the cutting tool is unintentionally contacted.

Make sure to read and understand the user manual.

C9450

Brake Rotor/Drum Lathe

This lathe is only used to resurface the drum, rotor surface of cars and SUV. Using this lathe for other purposes could result in personal injury and/or equipment damage.

Features:

◆ Produces an accurate machined surface that exceeds OEM specifications.

◆ Simultaneously machines both sides of the disc parallel eliminating run-out problems. Rigid mounting micrometer type tool holders eliminate flexing for maximum accuracy.

◆ Specially designed adapters assure that discs are machined to exceed manufacturer's specifications.

◆ Allows you to work quickly and efficiently. Simple design and ergonomic controls are designed for minimal operator movement.

◆ A precision lathe that will cut rotors and drums to very precise tolerances.

◆ Durable construction and heavy design means superior accuracy year after year. Oversize tapered spindles offer superior weight support during rotation and a screw-feed oil delivery system supplies a constant flow of oil to the bearings.

◆ High-impact storage case for tools and accessories.

STANDARD EQUIPMENT INCLUDES

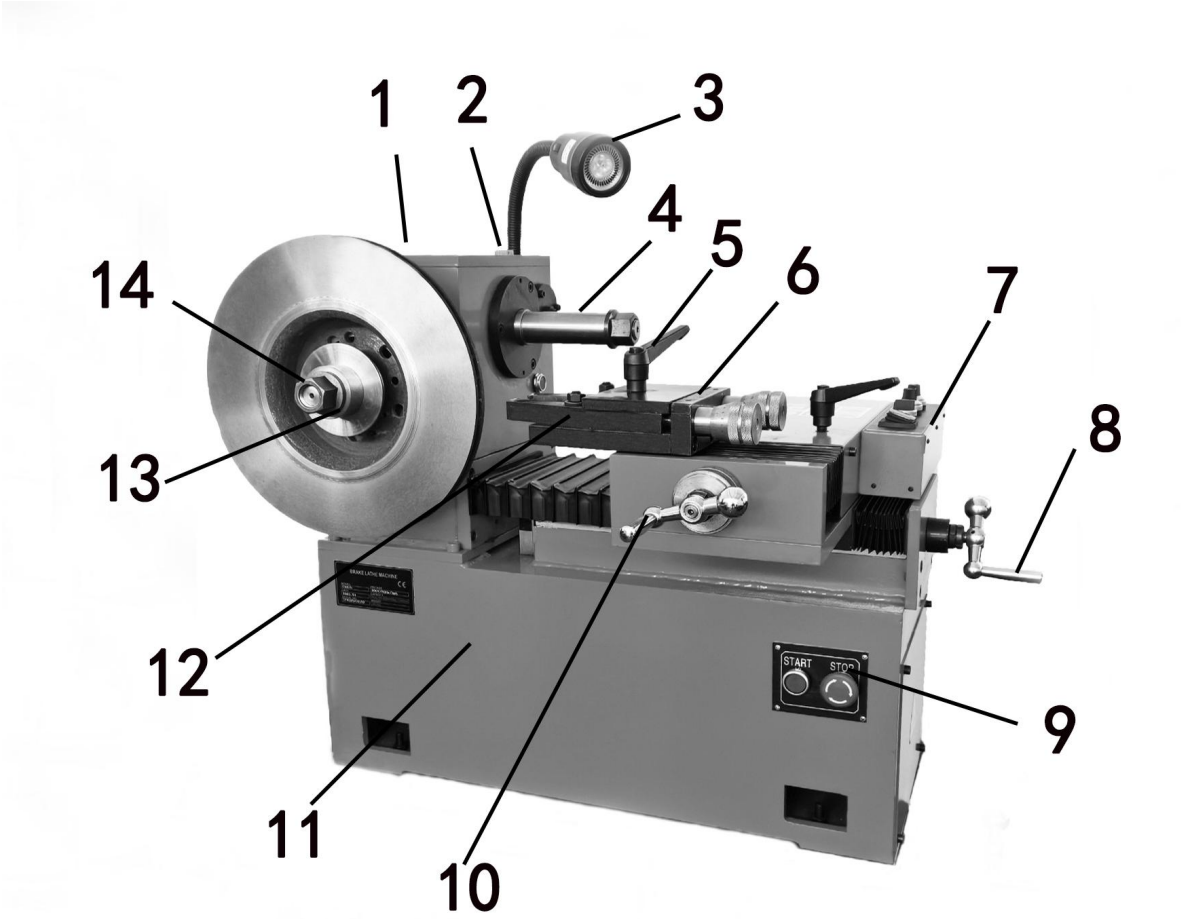
◆ Brake Rotor/Drum Lathe

◆ Twin Tool Holder
◆ Boring Bar
◆ 6-Sided Carbide
◆ Cutting Tools
◆ Spindle Nut
◆ Twin Tool Holder Stand
◆ Carbide Wrench
◆ Adjusting Spacers
◆ Centering Cones
◆ Wrenches
◆ Storage Case
◆ Manual
◆ High-impact Plastic Storage Box And Carrying Case

Specifications

Height-Lathe Alone： 25.79"/ 655 mm.
Length-Lathe Alone： 31.57"/802 mm.
Width-Lathe Alone： 24.41"/620 mm.
Spindle (For Rotor) To Floor：19.68"/ 500 mm.
Spindle (For Drum) To Floor：23.62"/ 600 mm.
Power: 220VAC, 50～60Hz；1PH
Motor: 1.1Kw（2 Grade）；1PH
Spindle Speed: infinitely variable
Feeding Speed: infinitely variable
Handwheel Scale: 0.002"/ 0.050 mm per space
Maximum Rotor Diameter： 15.74"/400mm
Maximum Rotor Thickness： 1.5"/38mm
Maximum Drum Diameter： 13.77"/350mm
Maximum Drum Depth： 3.94"/100mm
Net/Gross Weight： 220KG/260KG

InstallingPicture



1 Belt Cover
2 Oil Hole
3 Light
4 Spindle for Drum
5 Boring Bar Nut
6 Twin Tool Holder
7 Control Panel
8 Handwheel
9 Switch Knob
10 Handwheel
11 Machine Body
12 Cutting Body
13 Spindle for Rotor
14 Spindle Nut

Installation

1. Unbolt the lathe from the shipping pallet and remove the packing materials and protective wrapping. Put it on the designated place.

Always follow safe lifting practices when lifting heavy loads. Use a forklift or crane only. Do not attempt to lift lathe unit onto the bench without the use of material handling equipment with a lifting capacity of 600 pounds or greater.

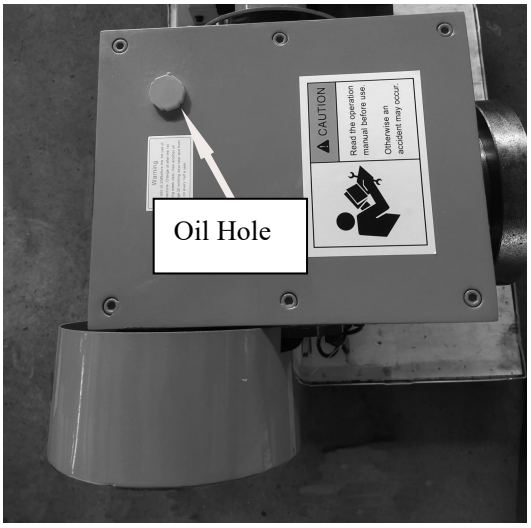
2. Remove any packing materials and protective wrapping from the lathe and components.

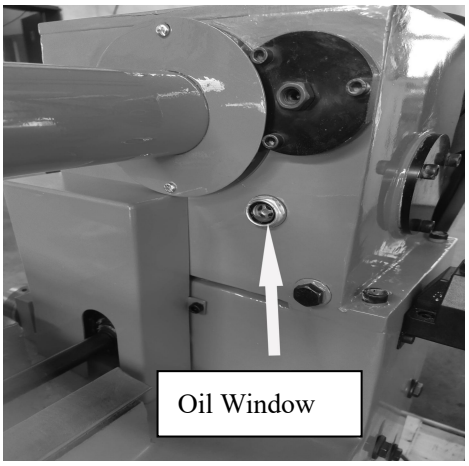
3. Make sure the lathe is turned off. Plug lathe into a properly installed and grounded outlet that matches the lathe plug.

Important Note

Please check if the voltage is matched with the real voltage before the lathe plug connects with the outlet.

4. The lathe is shipped without lubricant oil for the sake of safety. The user needs to put into #20 lubricant oil to the mark of 2/3 on the oilwindow. Check the oilwindow frequently.



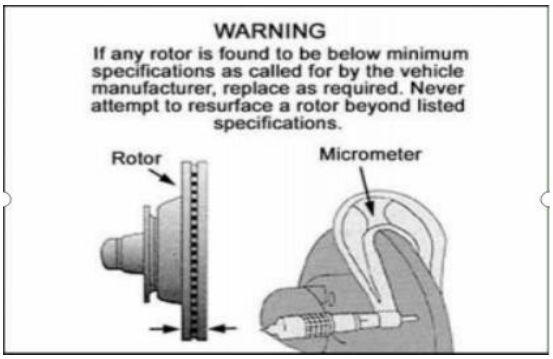


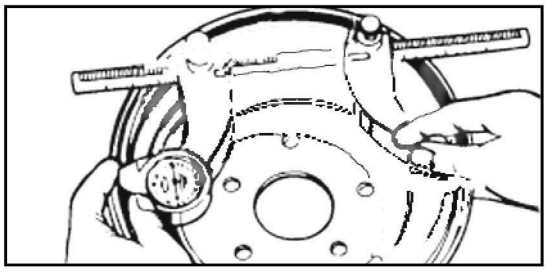
Brake Rotor/Drum Inspection

1. Before attempting any resurfacing rotor and/or drum inspection is necessary. Determine the manufacturer's specifications from an approved specification guide.

2. Using a digital micrometer or other measuring tool, record the thickness of the rotor or drum.

3. Determine if the total amount of material to be removed will meet the manufacturer's minimum specifications. If any rotor is found to be below minimum specifications as called for by the vehicle manufacturer, replace as required.





Basic Operation

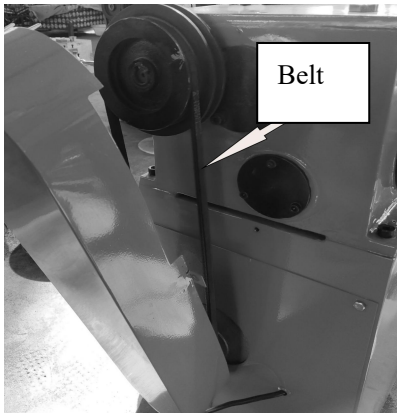
To help you understand drum and rotor turning, read the following that helps explain the features, operation and principles of drum and rotor resurfacing.

Spindle

The spindle is motor-driven and turns the mounted arbor which the brake drums or rotors are mounted on. When turning the drum or rotor via the arbor and holding a cutting tool against the braking surface, metal can be removed making the final result a smooth finish that meets original factory specifications. Smooth brake surfaces will extend the life of the brake pads and increase brake operation efficiency.

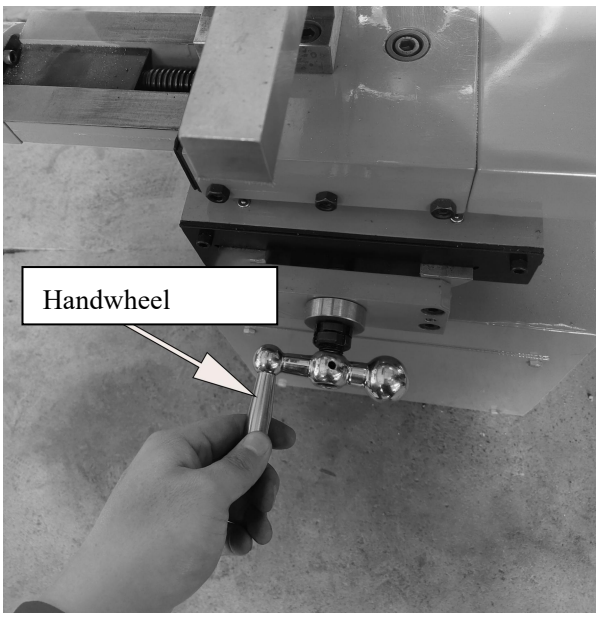
Arbor Speed

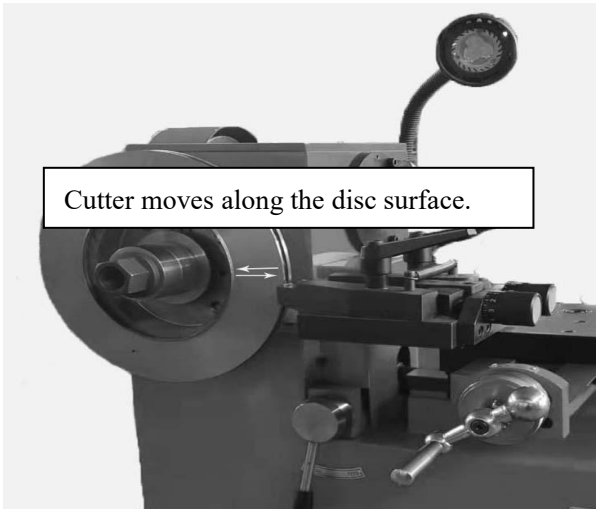
Arbor speed can be adjusted by adjusting the belt on the back of the lathe.

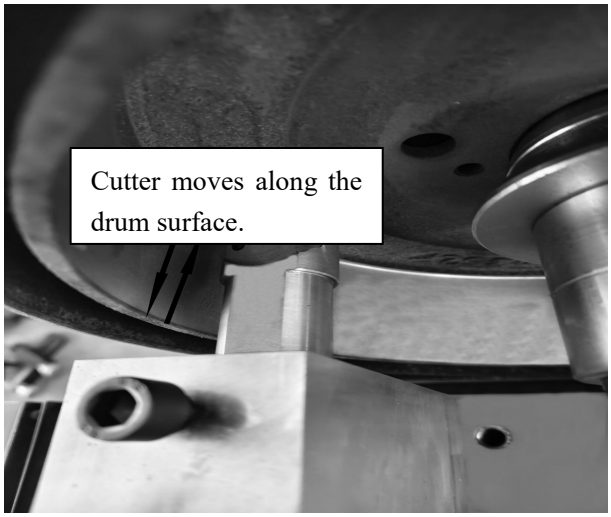


Start the feeding switch, adjust the FW BK switch, turn the feeding speed knob, and the disc and drum will be cut automatically.

When the feeding switch is OFF, the feeding of disc and drum spindle can be achieved by turning the handwheel manually.

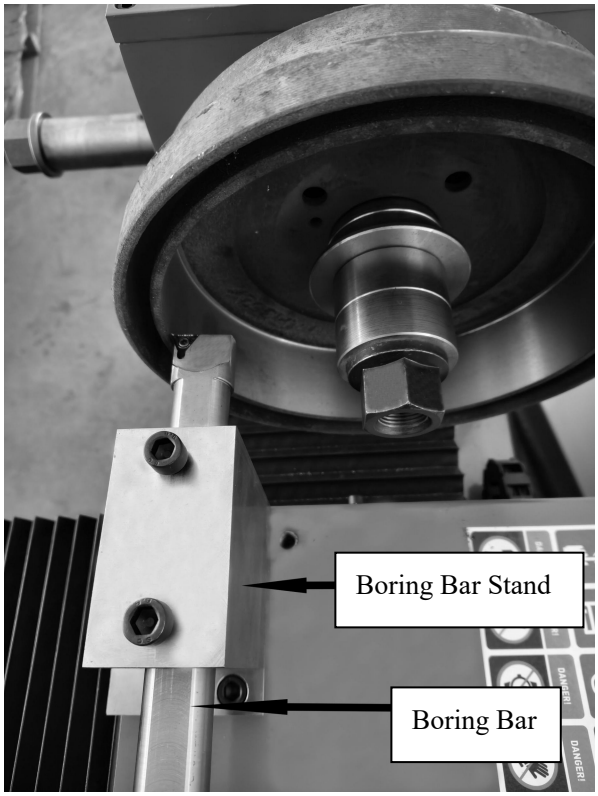




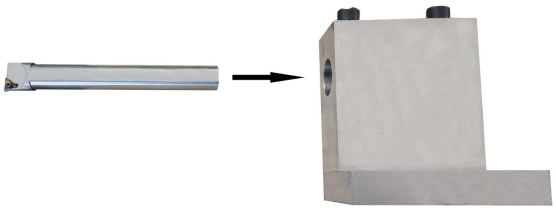


Resurfacing Drum

1. After the following instructions are read and understood, obtain a scrap drum for practice. First determine if the drum will be within factory recommended limits after resurfacing is performed.
2. Inspect the brake drum. Do not attempt to machine a drum that is damaged, excessively worn or in poor condition.
3. Install the boring bar on the boring bar stand as shown.



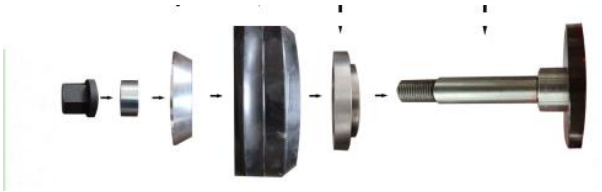
4. Be sure that a proper tool bit is secure in the boring bar and the cutting tip is not excessively worn. Sharp cutting tips must be used at all times. A dull cutter will affect the finish of both drums and rotors. If the cutting edge is damaged, replace it promptly. Be sure no metal chips are under tip when changing tips.



5. Mount the drum on the arbor using the proper adapters, cones, and spacers.

Mounting Hubless Brake Drums

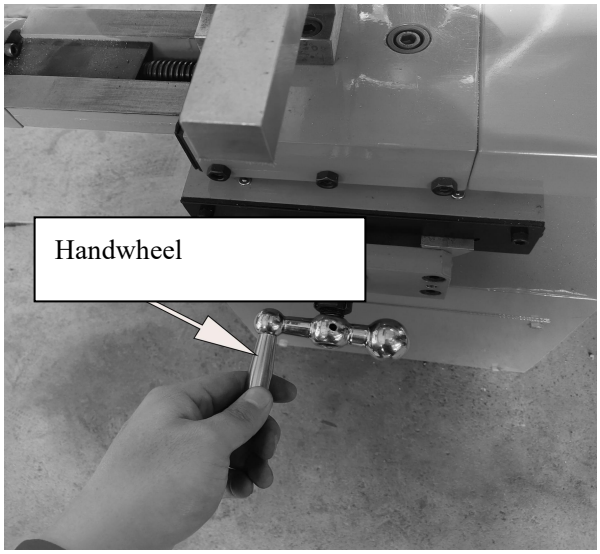
Select the largest hubless adapter possible that will fit inside the drum against the flat lug hole surface, followed by the step taper cone, press taper cone, clean drum, round taper cone, a spacer of the right size, and arbor nut through the arbor.



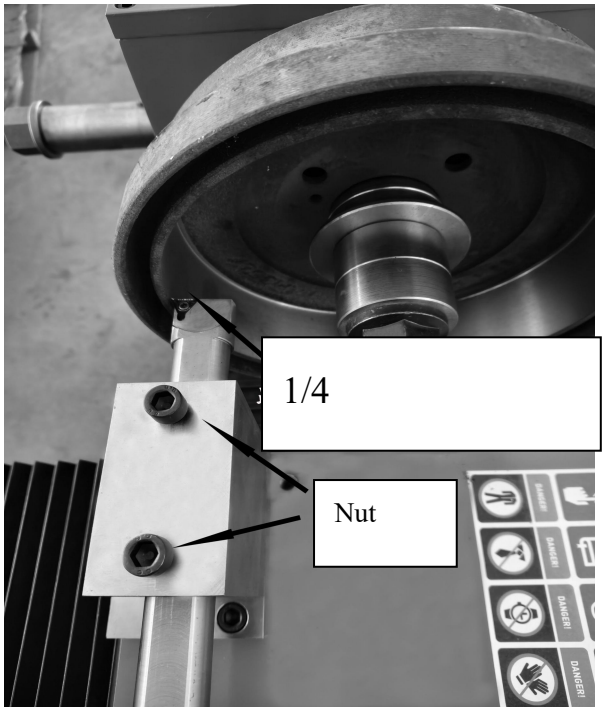
Handle Adapters with Care

The fixture and spindle are made of top grade steel and precision ground to close tolerances. Great care should be taken in their use, handling, and storage. The smallest nick or scratch can cause incorrect drum or rotor alignment resulting in inaccurate resurfacing.

6. Counterclockwisely turn the handwheel and make the upper slide near the hub.



7. Loosen the nut, move the tool bar towards the innermost side of the drum, within 1/4" away from the braking surface. Tighten the nut.



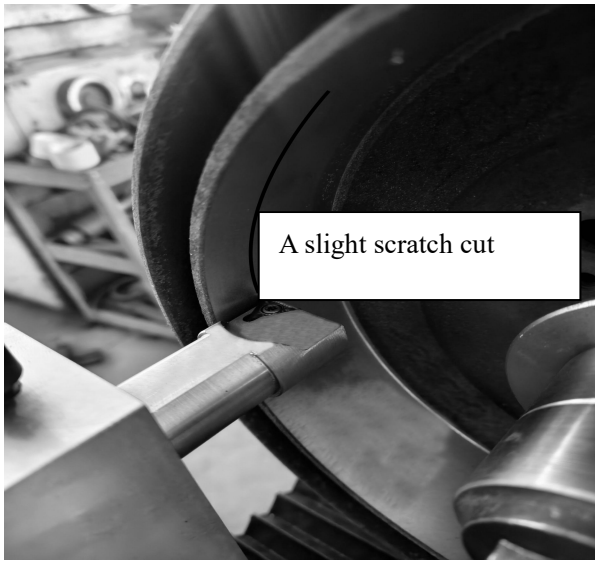
8. Check all clearances closely to make sure that nothing will “crash” when the power is turned on and the drum starts rotating. **Note**: it may help to turn the arbor nut clockwisely and turn the drum by hand to pre-check all clearances.

CAUTION

Before turning the power on, make sure the feeding switch is OFF, and the FW BK switch is in the middle position.

9. Turn the power on.

10. Turn the crossfeed hand wheel counterclockwisely and bring the boring bar cutting tip into the braking surface until it just barely contacts the drum surface and makes a slight scratch cut.

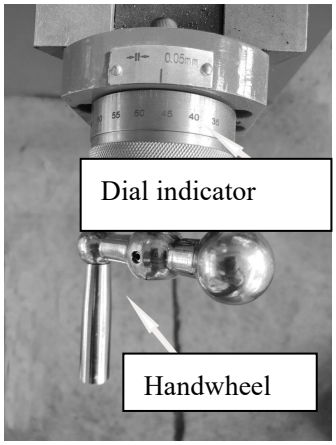


WARNING

Always wear safety glasses or a face shield. Cutting an exposed surface such as a brake drum or rotor will produce flying chips and debris.

11. Turn off power and examine the scratch cut making sure it is uniform around the entire circumference of the drum. If the scratch cut appears to be deeper on one side of the drum and not a uniform depth, then turn the power off, remove the drum from the arbor, check the mounting adapters and arbor for nicks, burrs, or chips, then remount the drum, and repeat the steps until a uniform scratch cut is achieved.

12. Holding the feeding handwheel firmly in position with your left hand, carefully rotate the dial indicator with your right hand until ZERO is positioned at top dead center and lined up with the tick mark. This will give you an initial zero-set starting point.



13. Turn the feeding handwheel counter-clockwisely until the boring bar reaches the innermost part of the drum. Be careful not to crash the boring bar and cutting tip on the inside wall of the drum or damage to tooling may result.

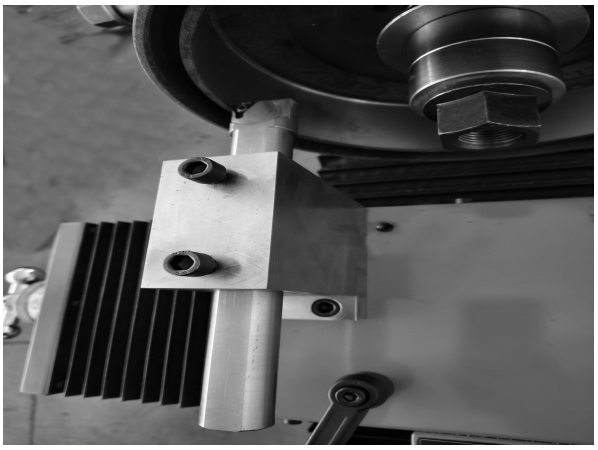
14. There are 100 graduations on the dial indicator. Each tick mark represents 0.002"(0.05mm metric).

Guidelines to Determine DEPTH-OF-CUT

Rough cuts should be no deeper than 0.5mm.
Finish cuts should be no shallower than 0.1mm.

15. With the lathe running, turn the crossfeed handwheel dial counterclockwisely to the depth desired.

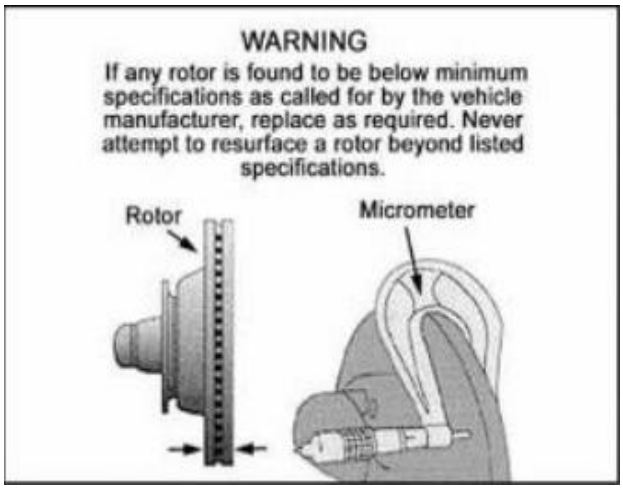
16. Turn the feeding switch to ON and the FW BK switch to BK, adjust the feeding knob, then the machine will resurface the drum automatically from inside to outside. Repeat the previous steps if the desired effect is not achieved.



Reconditioning Brake Rotors

After the following instructions are read and understood, obtain a scrap rotor for practice. Inspect all rotors carefully for excessive scoring, rust ridges (at the inner and outer circumference of the rotor), and blemished hard spots. Any excessive wear or deformity should be noted.

Always use a micrometer to check the thickness of the rotor. If the rotor thickness is less than the minimum established by the manufacturer or if it will be less after reconditioning, the rotor should be replaced.



Twin Tool Holder

A micro-dial twin cutter tool assembly is used to recondition both surfaces of a brake rotor at the same time. Set the cutters by adjusting the dial indicator.

Practice setting the micro-dial cutters for machining rotors. Learn all the functions thoroughly to insure proper operation. Most rotors will have the minimum thickness values cast into the outer surface.

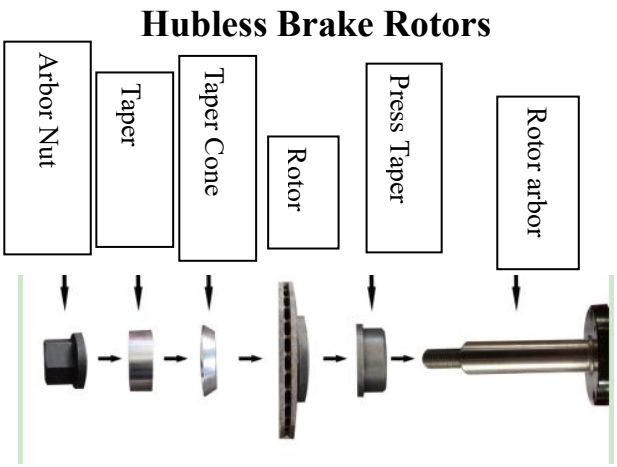
The proper procedure for determining whether to resurface rotors or discard them is as follows:

A. Using a micrometer or some other micrometer suitable for measuring the thickness of the rotor to be machined. Check the rotor thickness at four points (90 degress apart) about 1" from the outer diameter.

B. If the thickness at any of the four points is less than the minimum established by the car manufacturers as shown on the rotor or in a current brake specifications book, replace the rotor.

C. The rotor may be resurfaced if scored or it has a small amount of runout, provided it is within the minimum thickness requirement.

D. After the rotor is machined, measure the thickness again, and, if it is not within the allowable minimum limits, discard it. **Note**: This check requires a measurement in only one spot if both braking surfaces cleaned up 100%, because the turning operation assures almost absolute parallelism.



Mounting Hubless Brake Rotors

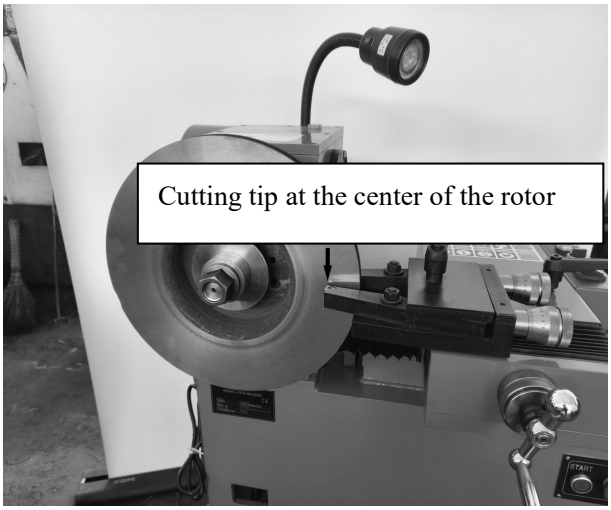
1.Select a taper cone that will fit inside the rotor against the flat surface, followed by the clean press cone, rotor, taper cone, a spacer of the right size, the arbor nut through the arbor.

2. With the power turned off, mount the Twin Tool Holder on the stand, as well as the cutter body on both sides. Tighten them with the wrench. Adjust the feeding handwheel, make the slot of the twin cutter should be approximately parallel to the lathe spindle and the center of the twin cutters lined up with the centerline of the rotor.

Important Note

Do not overtighten the arbor nut when mounting rotors on the spindle. The pressure of one hand on the wrench is sufficient to tighten. If centering cones, adapters and spacers are not clean or free of nicks and burrs or foreign matter when arbor is tightened, it could introduce spindle runout or "wobble".

3.Clockwisely turn the feeding handwheel, move the twin cutter inward to the center of the rotor.

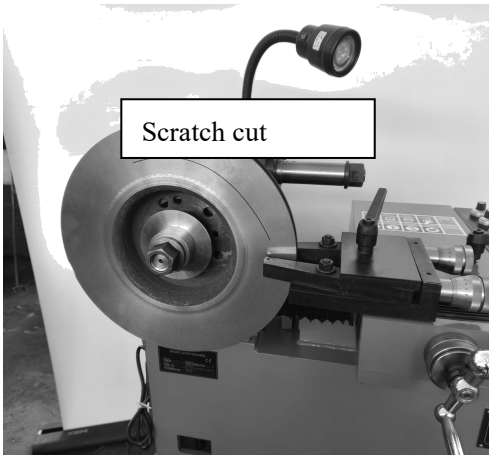


4.Before turning the power on, make sure the feeding switch is OFF, and the FW BK switch is in the middle position.

5. Turn on power and the lathe begins turning.

6. Turn the control knob on either side of the cutter,

until the tip just barely contacts the rotor surface and makes a slight scratch cut. Turn off power and examine the scratch cut making sure it is uniform around the entire circumference of the rotor. If the scratch cut appears to be deeper on one side of the rotor and not a uniform depth, then turn the power off, remove the rotor from the arbor, check the mounting adapters and arbor for nicks, burrs, or chips, then remount the rotor, and repeat the steps until more than a uniform scratch cut is achieved.



WARNING

Always wear safety glasses or a face shield. Cutting an exposed surface such as a brake drum or rotor will produce flying chips and debris.

7. Turn on power and clockwisely turn the feeding handwheel with the hand, move the twin cutter to the inner and outer sides to remove any rust build-up or high areas.

8.Feed the cutting tools inward towards the center of the rotor to a point slightly beyond the contact surface of the brake pads being careful not to run the carbide inserts into the hub portion of the rotor.

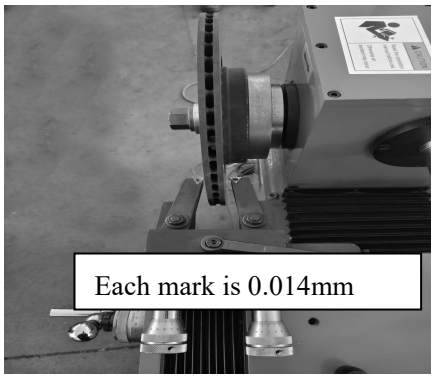
9.Turn both tool control knobs to the desired depth-of cut then lock them in position.

Guidelines to Determine DEPTH-OF-CUT

Either rough or finish cuts may be taken to resurface a rotor. Generally, finish cuts should be 0.004"(0.10mm) to 0.006"(0.15mm) per side. Very shallow cuts of less than 0.004"(0.10mm) per side tend to reduce tool bit life because the heat generated during reconditioning isn't transferred to the rotor efficiently. Rough cuts may be taken from 0.006"(0.15mm) to 0.010"(0.25mm) per side.

Important Note

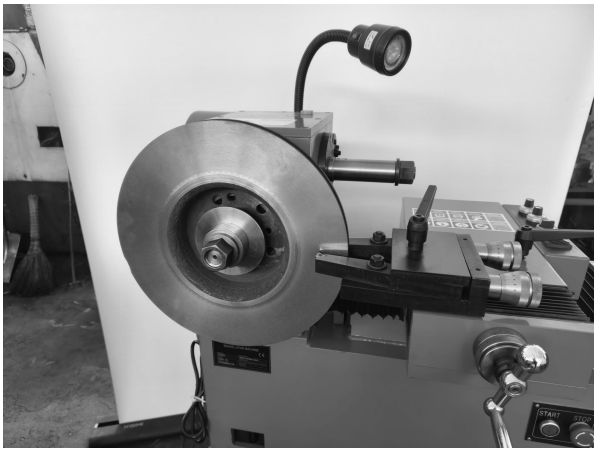
Simultaneously adjust the dial indicator. Turn clockwise to move cutting tips inward towards rotor. Each mark represents 0.014mm.



10. Set feeding switch to ON, and FW BK switch to BK, and adjust feeding speed knob. The lathe will cut disc automatically.

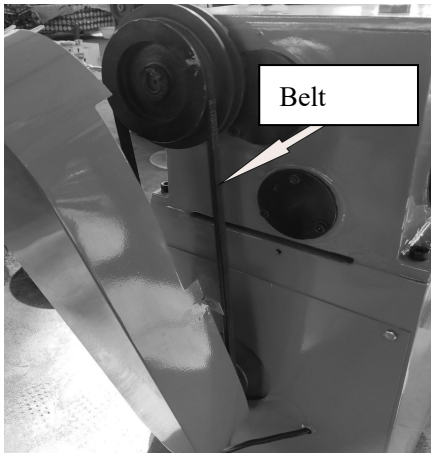
11. Turn the feeding switch to OFF and FW BK switch to the middle position.

12. Inspect the brake surfaces. If part of the surface was not cut, turn the lathe ON. Repeat steps until a smooth finish cut is made.



Adjusting Spindle Speed

The spindle speed can be changed by adjusting the belt on the back of the lathe. It is important to remember that the desired surface finish depends on the correct relationship of the spindle speed.



Installation Instructions

CAUTION

Proper unit installation is necessary for safe use and efficient operation. Proper installation also helps protect the unit from damage and makes service easier. Always keep this manual nearby.

Location

Select a location that will provide the operator with enough space to use the equipment in a safe manner. The area selected should be well-lit, easy to clean and away from oil, grease etc. Avoid areas where bystanders and customers may be present.

Electrical Source

This unit requires power from a 15 amp electrical circuit. Refer to the serial tag of the machine for specific electrical requirements. Have a licensed electrical technician perform any necessary changes to the power source before plugging in the unit.

Maintenance Instructions

Read and follow all the maintenance instructions provided in this manual to keep the lathe in good operating condition. Regular inspections and proper maintenance are essential to preventing accidents and injuries. These instructions will help you service this unit. Instructions are for a person with some mechanical ability and training. No attempt has been made to describe all basic steps like how to loosen or tighten fasteners. Basic procedures such as cycling systems and checking operation of the equipment are not fully described since they are described in this manual. Do not attempt to perform work beyond your ability or at which you have no experience. If you need assistance, call an authorized service center or contact the factory.

1. Before making any inspection, adjustment, or repair, disconnect the power source and block out all moving parts to prevent injury.

2. Keep the machine and the immediate work area clean. Do not use compressed air to remove dirt and debris from the lathe. Chips and dust may be driven between machined parts and into bearings causing undue wear and foreign material may be propelled into the air and into operator or bystander causing personal injury.

3. Wear protective clothing and use eye protection when making any adjustments or repairs to the machine.

Protective Maintenance

1. Check for worn, damaged or missing parts including grips and protective covers. Replace them before allowing the unit to be used.
2. Make sure all fasteners are securely tightened and all guards and covers are in place.
3. Replace any damaged or missing safety decals. They are available from the factory.
4. On a daily basis, inspect the unit and check to be certain that all systems are operating normally. Follow detailed inspection and testing procedures for various components at regular intervals.

General Lubrication

1. Oil the ways of the head assembly and thread screw periodically with a light oil.

Note: Cross feed should be in full inward position during lubrication.

2. Oil the threaded rods periodically with a light oil. Spray the drum lead screw with silicone lubricant.
3. Lightly oil the dovetails with motor oil.

Cleaning

Keep the lathe as clean as possible for trouble-free operation as well as safety and longer lathe life. Use a brush to sweep metal chips and dust off the lathe.
After use, always wipe clean.
Clean all exposed metal parts with a brush and apply a light coating of motor oil with.

Note: Do not apply oil to the tool slide clamping surface or the round tool holders on the twin cutter.

Use only factory original or authorized service parts to insure safety and performance.