FDT4000

ONBOARD BRAKE DISC LATHE MACHINE

USER GUIDE

DEFINITIONS OF HAZARD LEVELS

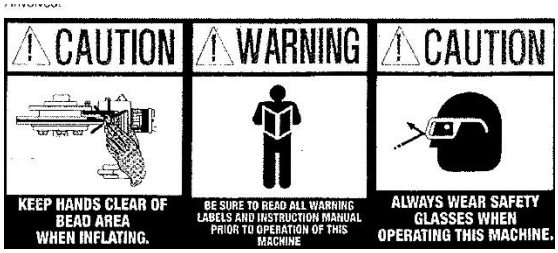
Identify the hazard levels used in this manual with the following definitions and signal words

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

Watch for this symbol: ıt means: Hazard or unsafe practies which could result in severe perasonal injury or death.

Watch for this symbol: ıt means: Hazard or unsafe practies which may result in minör personal injury or product or property damage

Watch for this symbol ıt means BE ALERT your safety or the safety of others is involved.



OWNER'S RESPONSIBILITY

To maintain machine and user safety the responsıbılıty of the owner is to read follow these insriction.

- Follow all installation instructions.
- Make sure installationconforms to all applicable local, state, and federal codes, rules, and regulsations: such as state and federal OSHA regulations and electrial codes.
- Carefuly check the unit for correct initial function.
- Read and follow the safety instructions. Keep them available for machine operators.
- Make certain all operators are properly trained, know how to safety and correctly opreate the unit, and are properly supervised.
- Allow unit oprations only with all parts in place and oparating safety.
- Carefully inspect the unit on a regular basis and perform all maintenance as required.
- Service and maintain the unit only with authorized or approved replacement parts.
- Keep all instructions permanently with the unit and all decal's on the unıt clean and visible.

WARNING INSTRUCTIONS

1. This equipment incorporates parts such as electrical switches which tend to produce sparks. When located in a service facility, the unit should be in a ventilated room or enclosure provided fot the purpose, or should be at least 18 inches or more obove floor to minimize the risk of igniting fuel vapors.

2. Eye and face protection is required and strongly recommended: “Protective eye and face equipment are required to be used where there is a reasonable probability of injury that can be prevented by use of such equipment.” OSHA 1910.133 (a) Protective goggles, safety glasses, or a face shield must be provided by the purchaser/user and worn by the oparetor of the equipment. Make sure al leye and face safety precautions ore followed by the oparetor(s). Keep by satanders out of the area.

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

4.Make sure rotors are properly mounted and square before starting the lathe. Check tov make sure all parts are secure.

5.Make sure the rotorsa re clean and mounted and properly before attaching lathe to the caliper.

6. Do not overoload the lathe. Read and understand the lathe cababilities prior to oparetion. Overloading the lathe is poor shortens the life of the unit, and could cause a failure resulting in personal injury.

7. Check damaged part carefully. Before further use of the lathe, a guard or other part that is damaged should be carefully checked. Immediately replace all damaged, missing, or non-functional parts. Check for alignment of moving part, binding of movie parts, breakege of parts, mounting, and any other conditions that my affect oparetion. 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 breake lathe running unattended. Turn the power off. Don’t leave the breake lathe until it comes to a complete stop.

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

BEFORE YOU BEGIN

Receivig: The shipment should be throughly 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 your 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.

NOTIFY THE CARRIER AT ONCE

if any hidden loss or damage is discovered after receipt and request the carrier to make an inspectiion. 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 DAM-AGE AFTER YOU HAVE GIVEN THE CARRIER A CLEAR RECEIPT. File your claim with the carrier promptly. Support your claim copies of the bill of lading, freight bill, invoice, and photographs, if available. Our willingness to assist in helping you process

your claim does not make Ranger Product responsible for collection of claims or replacement of lost or damaged materials.

ON-CAR BRAKE LATHE

AUTOMEC FDT4000 Brake Disc Lathe on the car is intended to resurface disc brake rotors on passenger cars, minbuses, light commercial vehciles medium duty trucks. Using this lathe for other purposes could resuld in personal injury and/or equipment damage.

FEATURES

- Lathe unit attaches to the caliper mounts ensuring the rotor is always square to the caliper, producing an accurate machined surface that exceeds OEM specifications. Electric serve-drive eliminates troublesome belt drives.
- Universal slide mount makes set-ups centering of toll holders fast and easy. Allows you to cut with either positive or negative rake. Simultaneously machines both sides of the rotor parallel eliminating run-out problems. Ridig mounting micrometer type toll holders eliminate flex-ing for maximum accuracy.
- Specially designed adapters assure that rotorsa re machined to exceed manufacturer's specifications.
- Simple, user-friendly controls. Variable speed control on power-drive turns spindle at fast or slow speeds for better finish cuts. Emergency stop switch for both lathe and drive unit motors. Clockwise and counterclockwise switch turns rotors for either right or left side.
- Autometic stop feature shuts the unit off when the finish cut is complete. After the finish cut is complete and the unit shuts off aqn audible alarm "beeps" and lets you know the job is done.
- Patendet single-lug quick-yoke attaches effortlessly and automatically centers itself.
- Heavy-duty, fully adjustable power-drive tand. Heavy-duty locking caster allows for fast and stable postioning of power drive assembly.
- High-impact storage case for tools and accessories.

STANDARD EQUIPMENT INCLUDES

- On-car brake lathe with micrometer-type tool
- Holders and 6-sided carbide ınterts
- Power fees auxiliary drive unit
- Universal slide mount
- Universal quick-yoke single-lug adapter
- Silender bands
- Caliper hook
- Spacer set
- Complete set of mounting plates ans shims
- Adapters for general purpose
- Tolls, an ıustrated ınstruction manual and a video
- High-ımpact plastic storoge box and carrying case

SPECIFICATIONS

- Max rotor thicknessİ:1-5/8
- Max rotor diameter:13-1/2
- Shipping weight:70kg
- Drive unit motor:1/2 HP/110/220 Volts,50/60Hz. 1PH.

HELPFUL HINTS

1. Refer to the vehicle service manual for the minimum rotor thickness before starting the set-up. If any rotor is found to be below minimum specifications as called for by the vehicle manufacture, replace as required.

2. Before beginning the turning and cutting oparaion, examine the cutting bits closely for excessive wear. If the cutting bit is worn, rotate the bit to the next cutting edge. When all edges are worn, replace with new bit.

3. Always warm up the vehicle in park or neutral before attempting to cut the rotor. When and engine is cold it may idle at a higher RPM and cause prematüre wear of the tool bıts causing a poor cut finish.

4. Always use the slowest speed on the vehicle and power drive assembly to obtain the best cut finish.

5. Be sure to tighten the lug nut securely the hold rotor firmly in place. It may be necessary to add an aditional lug nut to secure rotor. On some model vehicles with closed ens nuts the lug nuts may bottomout before tightening rotor. In this case us the fat washer along with this type of nut the take up the space diffirential.

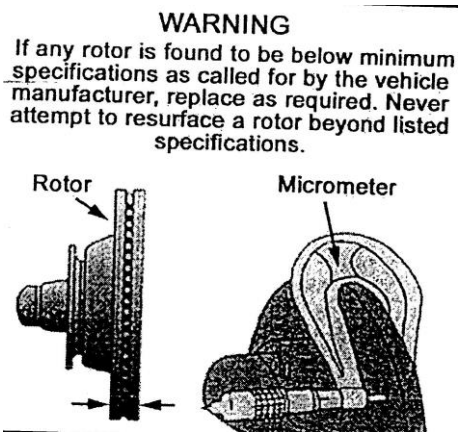
6. On some Honda and Acura vehicles it is necessary to tie down the opposite wheel to prevent it from turning if the wheel is suspended on a free wheel type lift.

7. Install the vibration damper bands to the rotor whenever possible to minimize chattering and produce the best finish cut.

BRAKE ROTOR INSPECTION

1-Before attempting any resurfacing, disc inspection is necessary. Demetermine the manufacturer's rotor specification from an approved guide.

2-Using digital micrometer or other disc-measuring tool, record the thickness of the disc. Observe any deep scores an gouges. This deprth will also need to be recorted.



3-If any disc is found to be below minimum specifications as called for by vehicle manufacturer, replace ass requited. Never attempt to resourface a disc beyond listed spefications.

MOUNTING THE LATHE BED

1. **1-** Always warm up the vehicle in park or neutral before attempting to cut the disc. When engine is cold, it may idle at a higher RPM and cause prematüre wear of the tool bits causing a poor cut finish.
2. **2-** Place automobile in NEURTAL with parking brake OFF and raise on lift.

IMPORTANT NOTE:

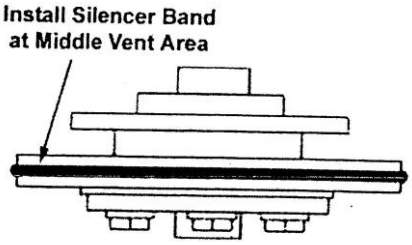
Check for excessive end-play in the wheel bearing before mounting the brake lathe bed. A löse wheel bearing may cause a poor surface finish. If bearing play is adjustable, tighten nuts slightly before machining, then re-adjust to factory specifications afterward. If there is play in a non adjustable bearing, it should be replaced before machining disc. Most non adjustable bearings are double row bal bearingsthat reuqire pre-load. Tapered roller bearings found of the fronof most rear wheel drive vehciles are designed to operate with end play.

3-Start on the passenger side and remove wheel nuts and wheel. Mount the quick-yoke single lug adaptr using one of the lug nuts as shown. It may be necessary to add an additional lug nut to filmly secure the disc. On some model vehicles with closed end nuts and lug may bottom out before tightening the disc.

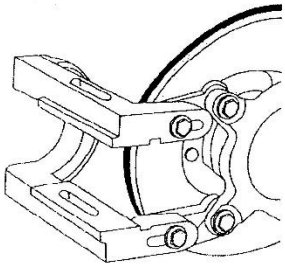
4-Remove the brake caliper and hang it our of the way using the caliper S-hook.

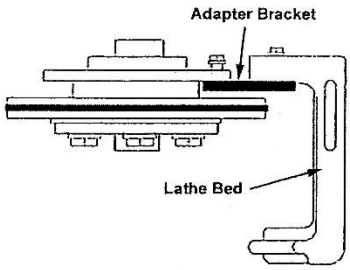
5-Remove all rust and dirt from the brake caliper bolt mounting area. Failure to clean these surfaces will result in unsatisfactory machining.

6-Before installing the lathe bed is important to install a vibration damper band to the disc to minimize catering and produce the best finish cut. Choose a band the best fits the disc making sure to keep the band clear of disc surfaces.



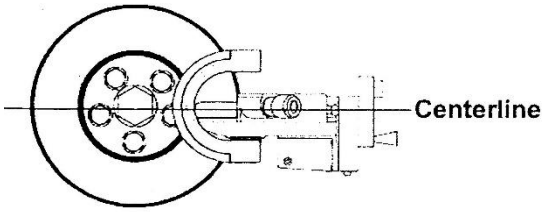
7.Select required brackets and spacares and mount the lathe ed as shown using the caliper mounting bolts. Keep bolts loose until the bed is positioned correctly as follows.



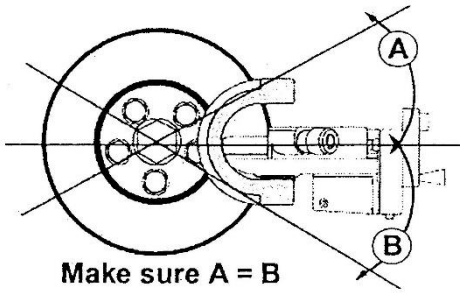


MOUNTING THE LATHE

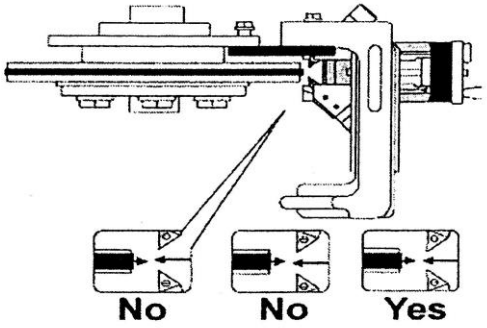
1.Position the lathe assembly on the mounting bed then adjust the position of the lathe so that the lathe centerline slightly below the center of the wheel hub.

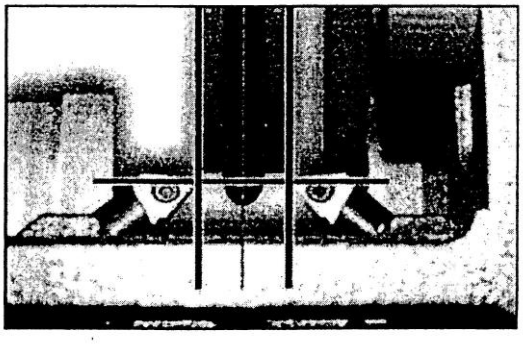


2.Adjust the lathe until it resembles the position shown below then tighten all caliper and mounting bolts securely.



3.Position the lathe so the cutting heads are centered to the rotor as shown.





4.After the lathe is positioned correctly, tighten the mounting bolt securely.

IMPORTANT NOTE

Always connect the control cable to the lathe motor with the lathe power swich in the OFF position. If not, the fuse in the main board will fail in order to protect the electric circuild.

DESCRIPTION OF CONTROLS

ON/OFF EMERGENCY STOP SWICH- This turns the power-drive on. With the button in the **PUSHED IN** position the motor will be **OFF.** With the button is the **OUT** position the motor will be **ON.** In the event you need to rapidly turn off the power drive motor simply press the button firmly. This acts as an **EMERGENCY STOP** feature for the drive motor.

IMPORTANT NOTE

Always make sure the SPEED dail is positioned at **ZERO** before turning on the drive motor to prevent accidental lathe oparation.

SPEED DIAL -Thıs controls the lathe spindle speed. Rate of travel (feed) of the cutting tools is controlled by this swicth setting.(Setting 1 slow and 10 is fast)

C**W / CCW SWICTH** -This controls the power drive motor for **CLOCKWISE or COUNTER CLOC WISE** oparation. With the swicth in the UP position the motor shaft turns clockwise. With the swicth in the DOWN position the motor shaft turns counterclockwise.

IMPORTANT NOTE: The ON/OFF SWICTH must be in the OFF POSITION before using the CW/CCW SWITCH.

The rotor must always turn **INTO THE CUTTING EDGE** of the tool bits. The top of the tool bits are the cutting edge only. Always set the **CW / CCW SWICTH** so that the rotor is directed downwards to the face of the cutting edge of the tool bits or damage to the motor and/or lathe will result.

PRE-CHECKING THE POWER-DRIVE

1.Mount the lathe and attach the power-drive as outlined ın the preceding section. Make sure the centerline of the power-drive shaft and wheel hub are centered.

2.Check that the ON/OFF EMERGENCY STOP SWITCH is ın the OFF position.

3.Check that the control cable is connected betweem the power-drive and the lathe.

4.Plug the power-drive motor into a prescribed 110 volt (or 220 volt depending on usage) outlet.

5.Set the SPEED DIAL SWICTH to zero OFF setting.

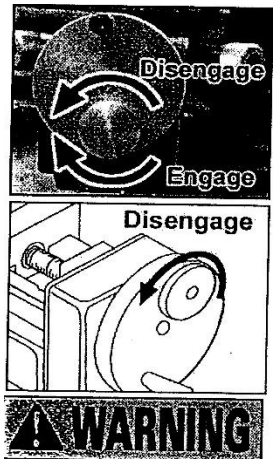
IMPORTANT NOTE

The power-drive unit **WILL NOT** oparate without the control cable conncted between the power-drive and lathe unit. If the ON/OFF SWICTH is turned on without the control cable connected an audible "beep" will be heard and the power-drive shaft **WILL NOT** turn.

6.Position the **CW / CCW SWICTH** to the clockwise or counterclockwise position depending on the side of the vehicle you are working on.

7.Turn the **CLUTCH DIAL** on the lathe assembly counterclockwise to disengage the lathe fed drive.

8.Verify that the cutting bits on the lathe attachment are clear of the rotor.



KEEP HANDS clear of moving parts at all time. Keep hair, loose clothing, neckties, shop rags, jewelry, fingers, and all parts of body away from moving parts.

9.Turn the **ON / OFF EMERGENCY STOP SWICTH** clockwise to the ON position. This turns the power-drive motor on.

In the event you need to rapidly turn off the power drive motor simply press the **ON / OFF** button firmly inwards. This acts as an **EMERGENCY STOP** feature for the drive motor. KEEP HANDS clear of moving parts at all times. Keep hair, loose clothing, neckties, stop rags, jewerly, fingers, and all parts of body away from moving parts.

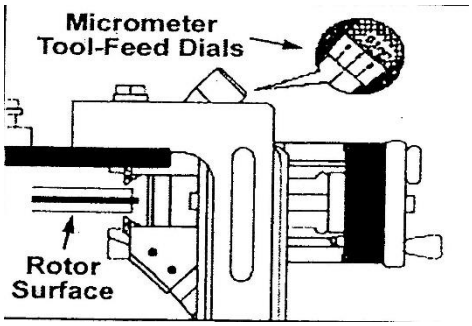
10.Immediately when the power-drive begins turning check to make sure the shaft and quick-yose is connected securly and properly aligned. If the power-drive stand is not aligned correctly the power-drive stand will shake irradically. Re-adjust if necessary.

PRE-CHECKING LATHE POWER FEED

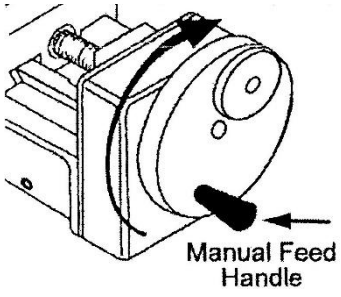
1. Mount the lathe and attach the power-drive as outlined in the preceding section. Make sure the centerline of the power-drive shaft and wheel hub are centered.

2. Check that the **ON / OFF SWICTH** is OFF, the control cable is connected and the **SPEED DIAL SWICTH** ıs set to zero OFF setting.

3. Adjust the knobs on the tool holders making sure the cutting bits are opened wide enough and do not interfere with the rotor surface.



4. Using the **MANUAL FEED HANDLE** turn the dial clockwise and manually 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 potion of the rotor.



IMPORTANT NOTE

The lathe feed dial will not turn manually unless the **CLUTCH DIAL is DISENGAGED**

5. After the cutting tools are positioned İnward slightly beyond the contach surface of the braks pads, turn the **CLUTCH DIAL** clockwise to angage the spindle.

6. Position the **CW / CCW SWITCH** to the clockwise or counter clockwise position depending on the side of the vehicle you are working on.

7. Double check to make sure the cutting tools are clear of the rotor then turn the **ON / OFF SWITCH** clockwise to the ON position.

8. Turn the **SPEED DIAL SWITCH** clockwise to setting 5. At this point the **LATHE FEED GEAR** and **DIAL** will turn counterclockwise and the cutting head of the lathe will begin to travel outwards on the rotor.

IMPORTANT NOTE

The rotor must always turn **INTO** the cutting edge of the tool bit. If you notice the rotation of the power-drive is incorrect, press the ON/OFF SWITCH inwards to the **OFF** position then change the setting on the **CW / CCW SWITCH**

KEEP HANDS clear of moving parts at all times. Keep hair, loose clothing, neckties, shop rags, jewerly, fingers and all parts of body away from moving parts. In the event you needs to rapidly turn off the power-drive motor simply press the **ON / OFF** button firmly.

9. The lathe unit and cutting tools will continue traveling towards the center of the rotor (outwards) during this oparation. When the cutting tools have move outward beyond the edge of the rotor the lathe head will engage the **AUTO-STOP SWITCH** (Red Button near the lathe head drive motor) and the power-drive and lathe feed will turn off. At this time an audible "beep" will be heard.

MAKING THE FIRST ROUGHT CUT

1. Mount the lathe and attach the power-drive as outlined in the preceding section.

2. Check that the **ON / OFF SWITCH** is OFF, the control cable is conncted and the **SPEED DIAL SWITCH** is set to the zero OFF setting.

3. Adjust both micrometer tool-feed knobs on the tool holders making sure the cutting bits are opened wide enough and do not ınterfere with the rotor surface.

4. Using the **MANUAL FEED HANDLE** turn the dial clockwise and manually feed the cutting tools inwards and stop near the center of the rotor. Remember, the lathe fees dial will not turn manually unlesss the **CLUTCH DIAL is DISENGAGED.**

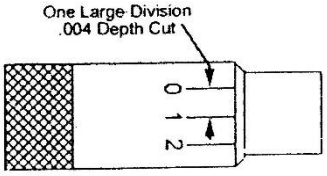
5. Turn **ON / OFF SWITCH** clockwise to the ON position. Check to make sure the rotor is turning **INTO** the cutting edge of the tools bits. If you notice the rotation is incorrect, press the **ON/OFF SWITCH** to the OFF position then cahnge the setting on the **CW / CCW SWITCH.**

6. With the rotor turning in the proper direction, adjust the micrometer tool-feed knobs on the tool holders and move both cutting tool tips towards the rotor until they both just touch the rotor surface on each side.

7. Turn the **MANUAL FEED HANDLE** counterclockwise and manually move the cutting tools outward toward the edge of the rotor to remove any rust build-up or high areas on the outer edge.

8. After cleaning up the outer edge of rotor manually fee the cutting tools inwards 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 outer edge.

9. After the cutting tools are are positioned inward slightly beyond the contact surface of the brake pads, turn the **CLUTCH DIAL CLOCKWISE** to engage the spindle.



10. With the rotor turning in the proper direction, turn the micrometer tool-feed knobs on the tool holders to move the cutting tools tip into the faces of the rotor until they both just touch the rotor surface on each side.

11. After checking to see that both tool bits are just touching the rotor surface, re-adjust both micrometer tol-feed knobs one large division to move the cutting tool tips into the faces on the rotor to a 004-inch cut depth.

12. Turn the SPEED DIAL SWITCH clockwise to setting 10. At this point Lathe feed gear AND dıal WİLL TURN COUNTERCLOCKWİSE AND CUTTİNG HEAD of the lathe will begin to travel outwwards making a rough cut on the rotor.

13. The lathe unitand cutting tools will continue traveling towards the center of the rotor (outards) during this operation. When the cutting tools have moved outward beyond the endge of the rotor and the lateh head will engage the AUTO-STOP SWITCH and the Power Drive and Lathe Feed will turn off. At this time an auidable ‘’beep’’ will be heard.

Note:

After a complete cut is made you can simply turn the SPEED DIAL to the OFF position rather than waiting fort he full travel of the lathe and cutting tools to engage the AUTO-STOP SWITCH.

14. Turn the SPEED DIAL SWITCH counterclockwise to the OFF position.

MAKING THE SECOND ROUGH CUT

1.For the second rough cut, disengage the CLUTCH DIAL and advance the tool the head towards the center of the rotor to a point slighltly beyonf the contact surface of the brake pads being careful not to run the carbide inserts into the hub portion of the rotor.

2.Re-adjust both micrometer tool-feed knobs one large division to move the cutting tool tips into the faces of the rotor another 0.004-inch.

3.Depending on the condition of the rotor, turn the SPEED DIAL SWITCH clockwise to a setting 5-10.At this point the cutting head of the lateh will begin to travel outwards making the second rough cut on the rotor.

4.The lathe unit and cutting tools will continue traveling outwards during this operation until the second rough cut is completed.

5. Turn the SPEED DUAL SWITCH counterclockwise to the OFF position.

Note: For optimum results, once the automatic feed is engaged, do not disturb the lateh or stand durşng the cut or damage to the rotor may result.

MAKING THE FINAL FINISH CUT

1.For the final finish cut, disengage the CLUTCH DIAL and advance the tool head 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.

2.Re-adjust both micrometer tool-feed knobs one large division to move the cutting tool tips into the faces of the rotor another. (or less depending on the condition of the rotor)

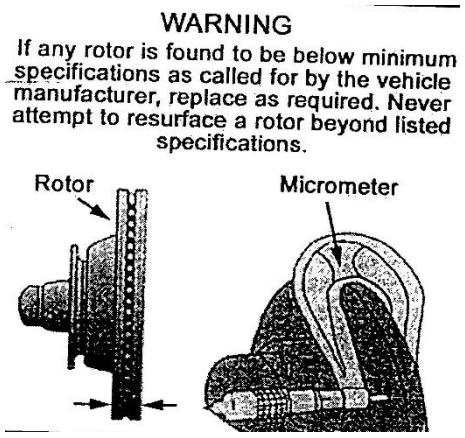
3.Depending on the condition of the rotor, turn the SPEED DIAL SWITCH clockwise to a setting 5-10.At this point the cutting head of the lateh will begin to travel outwards making the second rough cut on the rotor.

Note:

In some cases, one rough cut and one finish cut are sufficient. If not, repeat rough and/or finish cuts as required.

4.After the final finish cut is completed, turn the SPEED DIAL SWITCH counterclockwise to the OFF position then press the ON/OFF SWITCH inwards to the OFF position.

5.Inspect the rotor after machining to verify that the rotor runout and thickness meet manufacturer's specifications.



COMPLETION/REMOVING LATHE

1.After a satisfactory surface finish has been obtained, adjust the knobs on the tool holders making sure the cutting bits are opened wide enough and do not interfere with the rotor surface.

2.Use the hand Wheel to back the cutting tools to a position beyond the outer edge of the rotor.

3.Remove the lathe and repeat the operation on the other side of the vehicle.

Note:

It will be necessary to repositionthe CW/CCW SWITCH to the alternative position.

SELF-MAINTENANCES

1.No power supplied.

-Check the proper cable connections including AC/DC cables

2.No rotation of motor with beep out a warning.

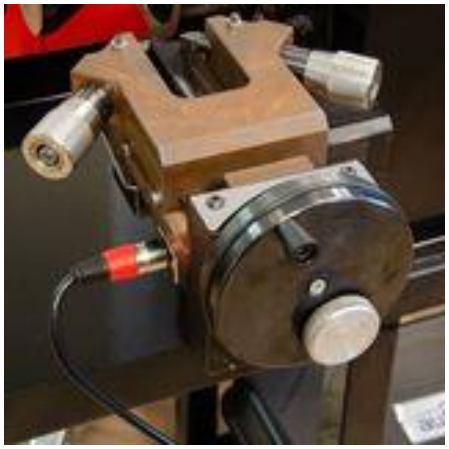
-Make certain connection of DC cable or if switch in is off position.

-Check the defecks of lathe switch.

-Check if the lathe bite hold is moved to the rear and has a contact with the swıcth.

3.Uneven resurfacing and rough surface produced.

-Shake from side to find lathe clearance. If there is a clearence delete the lathe clearance through adjusting clearance bolt.



-When bite is run out, exchange bite or change oparetion place.

-Make certain ıf the rubber band is placed around the disk.(for shpck absorption)

-Make certain if it is resurfaced excessively (under half or one scale mark)

4.While resurfacing, check if noise or comb-ribbed column occurs.

-When placing rubber band around it, noise will diminish.

- When placing rubber band around it, the comb-ribbed column also will disappear.

PREVENTIVE MAINTANANCE

CLEANING

-Keep the lathe as clean as posible for trouble free oparation as well as safety and longer lathe life.

-Use brush to sweep metal chips and dust off the lathe.

-When deeper cleaning is needed, you can use brake disk cleaner sprey.

-Do not use oily sprays, they will make the metal chips stick and be driven between parts.

WARNING

-High voltage is present in the brake lathe. Follow all saftey instrucktions and rules before use and repair.

-Disconnect from power source before starting any repairs or internal adjusment.

-Servicing should be made by authorized service personnel.