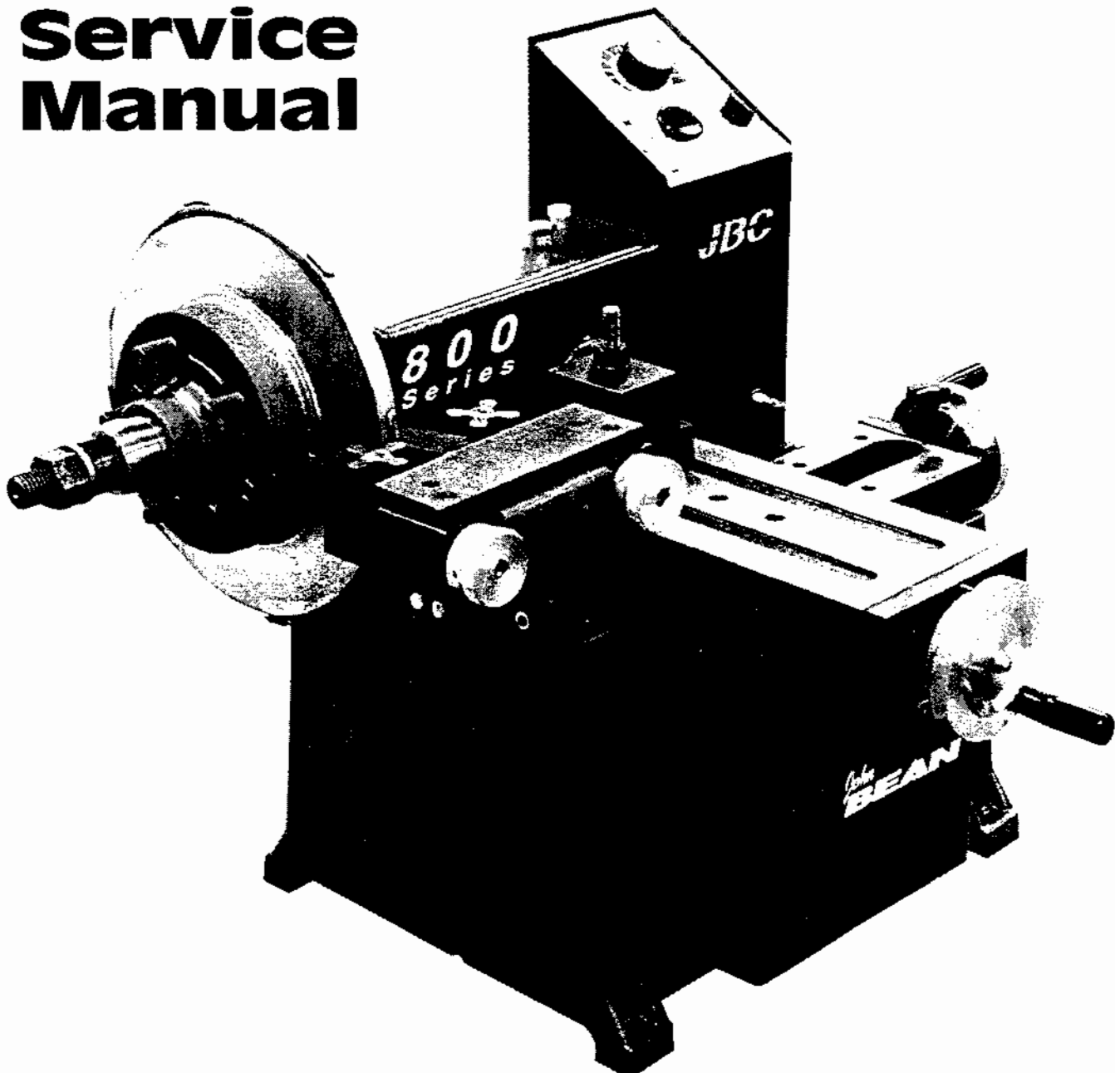




# 800 SERIES

## Disc & Drum Brake Lathe

### Operating & Service Manual



"FOR REFERENCE ONLY"

**Part No.**

- ☐ **801** .....115V, 60/50 Hz, 1 Ph
- ☐ **801-1** .....230V, 60/50 Hz, 1 Ph
- ☐ **800** .....115V, 60/50 Hz, 1 Ph
- ☐ **810** .....115V, 60/50 Hz, 1 Ph
- ☐ **87BSC** .....115V, 60/50 Hz, 1 Ph
- ☐ **87DLX** .....115V, 60/50 Hz, 1 Ph

Serial Number \_\_\_\_\_

Purchase Date \_\_\_\_\_

Purchaser's Name \_\_\_\_\_

Address \_\_\_\_\_

Set-Up Date \_\_\_\_\_

Set-Up By \_\_\_\_\_

## ABOUT THIS MANUAL

Knowledge of and compliance with the operational and service principles outlined in this manual are essential for operation of your machine. Maximum benefit will be gained from the initial set up and training session if all prospective operators have read and are familiar with this manual. The more you know about your 800 Series Disc & Drum Brake Lathe— the more profitable it will be. Please specify the Model and Serial Number of the machine in any correspondence referring to this machine.

If any problems relative to operation or service should arise, contact the factory direct, as we maintain personnel who will assist with conditions relative to either service or production which might arise.

The following symbols are used for emphasis throughout this manual:



Situations which require Danger labels indicate immediate hazards which will, without question, result in death.



Situations which require Warning labels indicate hazards or unsafe actions which may result in severe equipment or property damage and/or personal injury or death.



Situations which require Caution labels indicate hazards or unsafe actions which may result in minor equipment or property damage and/or personal injury.



Situations which require Notice labels indicate procedures or operating instructions. Notice labels do not take the place of danger, warning or caution labels.

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## MAINTENANCE & SERVICE

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## RECEIVING MACHINE

1. For **Professional** use only!
2. Always inspect the shipment of your machine for evidence of damage before signing the bill of lading. A signed bill of lading indicates the shipment was received in good condition.
3. If any of the equipment is received damaged, or if the number of pieces being delivered are in question, ask the freight company to make a notation on the freight bill. Do this for your own protection.
4. If you discover any **HIDDEN DAMAGE** after receipt of the shipment, ask the freight company to make an inspection promptly and file a claim with that company as soon as possible. Furnish as much supporting evidence as possible, such as a copy of the bill of lading, copy of the original invoice, and photographs.
5. John Bean Company will cooperate and assist in the preparation and filing of claims on the customers behalf, however we cannot assume the responsibility for damage in transit nor will we be responsible for the actual collection of claims or replacement of lost or damaged merchandise.

## TO REDUCE YOUR RISK OF AN ACCIDENT, AT A MINIMUM, DO THE FOLLOWING

### WORK AREA

1. **Keep Work Areas Clean.**  
Cluttered areas and benches invite accidents.
2. **Avoid Dangerous Environment.**  
Don't use equipment in damp or wet locations.  
Keep work area well lit.  
Do not expose equipment to rain or caustic fumes.
3. **Keep non-operators away from the work area, especially children.**
4. **If necessary, temporarily shut off the machine until the area is clear.**

### PERSONAL MATTERS

1. **Dress properly.** Do not wear loose clothing. They can be caught in moving parts. Non-skid footwear with metal reinforcement is recommended. Wear protective hair covering to contain long hair.
2. **Use safety glasses.** Face or Dust masks should be used because machining may create metallic dust.
3. **Stay alert.** Watch what you are doing.  
Use common sense.  
Do not operate machine when you are tired or while using medication.
4. **Disconnect equipment.** Before servicing and when changing blades and bits
5. **Avoid accidental starting.**  
Make sure switch is OFF when the machine is being plugged in.
6. **Don't overreach.**  
Keep proper footing and balance at all times.
7. **Check damaged parts.** Before further use of the machine, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is missing or damaged should be properly repaired or replaced before the lathe is used.
8. The use of any other accessories not specified in this manual may create a hazard.
9. Before connecting the lathe to a power source, be sure the voltage supplied is the same as that specified on the Serial Plate of the machine.

# LABELS

## **WARNING**

1. All operators should read and understand the complete operation manual before attempting to operate this machine. If any portion of this manual is unclear, contact the manufacturer for additional instructions before operating machine.
2. For Professional use only!
3. Never allow unskilled or improperly trained personnel to operate this equipment.
4. DO NOT operate this equipment under the influence of alcohol, drugs or medication which may alter judgement or physical performance.
5. All machine operators should wear proper clothing and eye protection.
6. All electrical installation and maintenance should be performed by a licensed electrician only. Use of unqualified personnel to perform electrical maintenance may result in unsafe conditions causing personal injury.
7. Electrical installation must conform to all national electrical codes as well as any state and local codes governing this machine.
8. Turn off and lock out electrical power before opening door or removing cover.
9. DO NOT operate this machine without covers and guards. Always replace and secure covers after any maintenance work is completed.
10. Never use cracked or damaged tool bits.
11. Keep hair and body parts out of rotating parts, belts and gearing.
12. DO NOT use this machine for turning or grinding any items other than, brake drums, discs or automotive related flywheels.
13. Never go under manufacturers recommended minimum thickness on rotors.
14. Never go over manufacturers recommended diameter on drums.
15. Maximum cut allowed .015 (.38mm).
16. Never allow non-operators to stand in designated machine work area, during machine operation.
17. Inspect all workpieces for cracks, defects or loose parts prior to refinishing. If defects are found do not mount on machine.
18. Check for runout or imbalance of all work pieces prior to machine start up.
19. DO NOT over tighten arbor nuts when mounting work pieces. Always mount and secure workpiece with tooling provided.
20. Never run machine unattended.
21. Always keep hands and fingers away from spindle while operating this machine.
22. Use only manufacturers recommended replacement parts and tooling.
23. Maintain this machine per the lubrication and maintenance sections of the manual.
24. It is your responsibility to keep this warning label in place and legible. Replacement labels are available from the manufacturer Order Part No. 92279
25. Failure to heed these warnings may result in damage to the equipment, or failure resulting in property damage, personal or fatal injury.

Part No.92279



Part No. 92169



Part No. 92280



Part No. 92281



Part No. 92282



Part No. 92263

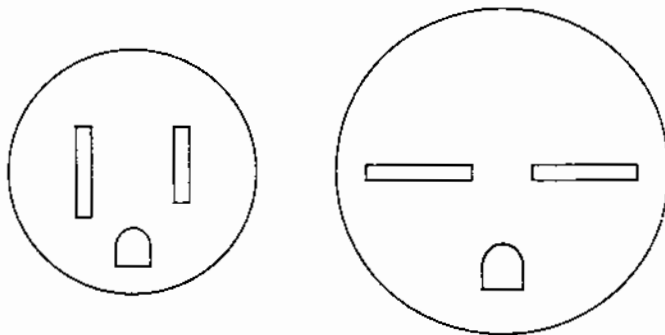
# ELECTRICAL REQUIREMENTS

1. The 800 Series is available in three electrical configurations: 115V, 60 Hz, 1 Ph; 230V, 60 Hz, 1 Ph; and electricals of 230V, 50 Hz, 1 Ph.

**IMPORTANT:** Before connecting the lathe to a power source (receptacle, outlet, etc.), be sure the power switch is in the "Off" position and the voltage source available is the same as that specified on the Serial plate of the lathe. A power source with voltage greater than that specified for the machine can result in **SERIOUS INJURY** to the user -- as well as damage to the lathe.

2. The machine is equipped with a standard 3 conductor cord with a 3 prong grounding type plug that fits into the standard grounding type receptacle. Never do anything to defeat the grounding terminal on this machine. Replace only with the same style plug. If an extension cord is required, use a heavy duty type with a 3 prong grounding type plug. An under-sized cord will cause a drop in line voltage, resulting in loss of power and over-heating.

**NOTE:** Export machines will not have a plug. Only a pigtail will be provided — contact an electrical professional for proper plug connection.



115V

230V

3. One of the following fused service lines is required for this machine — check the serial no. plate located at rear of your machine:  
115V, 60 Hz, 1 Ph: 20 amp, 12 gage wire  
230V, 60 Hz, 1 Ph: 15 amp, 14 gage wire  
230V, 50 Hz, 1 Ph (Export): 15 amp, 14 gage wire
4. The machine has a 4 amp inline fuse located on the back of the electrical control box. This fuse protects the DC drive circuit only. It will not protect any supply source equipment.
5. The 1 HP motor is protected by a thermal overload limit switch that must be manually reset if an overload occurs.

# STANDARD EQUIPMENT

## Part No.

92000 Disc Rotor Claw Assembly  
92001 Tool Bar for Drums  
92002 Tool Bit Holder for Drums  
92003 Carbide Bit Package  
4 Rotor Bit (3 cutting edges)  
2 Drum Bits (2 cutting edges)  
**Arbor Components**  
92004 1" Arbor with Nut  
& Washer  
92005 Spring  
92006 Spacer, 1" Long  
92007 Spacer, 2" Long  
92008 Draw Bar

## Part No.

**866500 Cone Set: Solid Type, 1" Arbor**  
92010 Cone, 1.70 - 2.35  
92011 Cone, 2.25 - 2.90  
92012 Cone, 2.80 - 3.45  
92013 Cone, 3.35 - 4.00  
**92014 Cone Set for 1" Arbor Double Ended Cones, Solid Type**  
92015 Cone, 1.32 x 1.67  
92016 Cone, 1.36 x 1.71  
92017 Cone, 1.71 x 2.07  
92018 Cone, 2.07 x 2.44  
92019 Cone, 2.44 x 2.89

## Part No.

**Clamp Bells**  
92020 4.25 O.D. (2 included)  
92021 5.75 O.D. (2 included)  
**Miscellaneous**  
92022 Vented Rotor Silencer  
92023 Solid Rotor Silencer  
Magnetic Band, 1/4" x 4"  
92024 Automotive Drum Silencer  
92025 Hex Key .187 Short  
92026 Hex Key .125 Short  
92027 Hex Key .312 Short  
92028 Wrench, Draw Bolt  
92029 Wrench, Arbor Nut

# OPTIONAL EQUIPMENT

## Part No.

**92030 11/16" Arbor with Nut, Cone & Washer**  
Bore Range .875 to 1.250  
Drums & Rotors  
**92031 1 7/8" Arbor with Nut & Washer**  
(for Ammco Adapters)  
**92032 2" Arbor with Nut & Washer**

**92033 Hubless Adapter Set**  
**Small Size for 1" Arbor**  
**Bore Range 1.87 - 3.00**

92034 Rotor Locator  
92035 Cone, 1.875 x 3.125  
92036 Spacer  
92037 Locator Nut  
92038 Wrench, Spanner

**92039 Hubless Adapter Set**  
**Std. Size for 1" Arbor**  
**Bore Range 2.03 - 3.93**

92040 Rotor Locator  
92041 Cone, 2.12 x 4.00  
92042 Spacer  
92043 Locator Nut  
92038 Wrench, Spanner

**92044 Hubless Adapter Set**  
**Large Size for 1" Arbor**  
**Bore Range 4.00 - 5.75**

92045 Rotor Locator  
92046 Cone, 3.68 x 5.93  
92047 Spacer  
92048 Locator Nut  
92049 Wrench, Spanner

**92050 Hubless Adapter Set**  
**Large Size for 2" Arbor**  
**Bore Range 4.00 - 5.75**

92051 Rotor Locator  
92046 Cone, 3.68 x 5.93  
92047 Spacer  
92048 Locator Nut  
92049 Wrench, Spanner

**92052 Hubless/Composite Rotor**  
**Adapter Kit**

92039 Hubless Adapter Set, Std. Size  
92053 Backing Plate for  
92054, 92055, 92058, 92059  
92054 Adapter Plate, Taurus/Sable  
92055 Adapter Plate, G.M. "W-Body"/Lincoln  
92056 Backing Plate, Chevy 1500 (for 92057)  
92057 Adapter Plate, Chevy 1500

## Part No.

**Composite Rotor Backing Plates**  
**for 92039 Adapters**  
92057 Adapter Plate, Chevy 1500  
92056 Backing Plate, Chevy 1500 (for 92057)  
92054 Adapter Plate, Taurus/Sable  
92055 Adapter Plate, G.M. "W-Body"/Lincoln  
92058 Adapter Plate, Eagle Premier  
92059 Adapter Plate, Jeep Cherokee  
92056 Backing Plate for  
92054, 92055, 92058, 92059  
92060 Cone, Toyota/Nova Rotor  
92061 Cone, Porsche Rotor  
92062 Cone, Saab Rotor

## Cones, Double Ended for 1" Arbor

92015 Cone, 1.32 x 1.67  
92016 Cone, 1.36 x 1.71  
92017 Cone, 1.71 x 2.07  
92018 Cone, 2.07 x 2.44  
92019 Cone, 2.44 x 2.89  
92063 Cone, 2.82 x 3.18  
92064 Cone, 3.20 x 3.56

## Cones, Solid Type for 1" Arbor

92065 Cone, 1.15 - 1.80  
92010 Cone, 1.70 - 2.35  
92011 Cone, 2.25 - 2.90  
92012 Cone, 2.80 - 3.45  
92013 Cone, 3.35 - 4.00  
92066 Cone, 3.90 - 4.55  
92067 Cone, 4.45 - 5.10  
92068 Cone, 5.00 - 5.65

## 92069 Light Truck Set for 1" Arbor

Bore Range 3.90 - 5.65

## for Hubless Drums / Discs

92066 Cone, 3.90 - 4.55  
92067 Cone, 4.45 - 5.10  
92068 Cone, 5.00 - 5.65  
92005 Spring  
92070 Clamp Bell, 6.25" (2 included)  
92071 Clamp Bell, 7.75"

## 92072 Medium Truck Set for 2" Arbor

Bore Range 2.15 - 6.10

## for Hubless Drums / Discs

92073 Cone, 2.15 - 2.80  
92074 Cone, 2.70 - 3.35  
92075 Cone, 3.25 - 3.90  
92076 Cone, 3.80 - 4.45  
92077 Cone, 4.35 - 5.00  
92078 Cone, 4.90 - 5.55  
92079 Cone, 5.45 - 6.10  
92080 Spring  
92081 Clamp Bell, 7.75 (2 included)  
92082 Spacer, 2" Long  
92083 Spacer, 3" Long

## Part No.

**92084 Heavy Truck Set for 2" Arbor**  
Bore Range 5.45 - 8.30  
**for Hubless Drums / Discs**

92079 Cone, 5.45 - 6.10  
92085 Cone, 6.00 - 6.65  
92086 Cone, 6.55 - 7.20  
92087 Cone, 7.10 - 7.75  
92088 Cone, 7.65 - 8.30  
92080 Spring  
92089 Clamp Bell, 9.25 (2 included)  
NM780305 Spacer, 2" Long  
NM780301 Spacer, 3" Long

## Carbide Bits / Tool Holders

92090 Rotor Bits - Pkg/10  
(3 cutting edges)  
92091 Drum Bits - Pkg/10 (2 cutting edges)  
92092 Heavy Duty Tool Holder & Bit  
92093 Tool Bit for 140822  
92094 Solid Carbide Bit with .375 Shank

## Accessories

**675 Deluxe Bench, Heavy Gauge,**  
22"W x 38"L x 71"H with  
2 Tool Boards, Chip Tray  
and Adaptor Hooks  
92095 Truck Drum Silencer, 2 3/4" wide  
92096 Brake Drum Wear Limit Gage  
Range 6" - 22"  
92097 Rotor Micrometer, Range .30 - 1.30  
92098 Safety Shield  
92099 Tool Bar Extension, Small Drum Adap.  
92100 Vented Rotor Silencer  
92023 Solid Rotor Silencer Magnetic  
Band, 1/4" x 4"  
92024 Automotive Drum Silencer  
92101 T-Bar Holder  
92102 Disc Rotor Swirl Finisher,  
Non-Directional  
92103 Replacement Pads,  
25 Count, 80 Grit  
92104 Replacement Pads,  
25 Count, 120 Grit

**SMALL FLYWHEEL KIT VNE868208**

**DRUM FLYWHEEL CONE VNE866445**

# INSTALLATION

## MOUNTING ON BENCH

1. If the optional 800 Series bench Part No. 675 was purchased, assemble per instructions on Page 25. Otherwise, select a bench that is about 30 inches tall and capable of supporting an operating brake lathe with its dynamic forces assume 425 lbs. static weight.
2. Remove the 4 bolts holding the lathe to the shipping pallet. Lift the lathe using the eye bolt provided (**Figure 1**). Do not lift the machine by the spindle, belt pulley cover, or either of the disc or drum cross slides. This could damage the lathe and would void the warranty on the unit.
3. Mount lathe to the bench using 3/8" bolts thru the four feet of the lathe. Secure with washers and nuts from the bottom side of the bench.
4. Replace eye bolt with 1/2-13 set-screw provided (**Figure 2**). Turn until flush with surface.

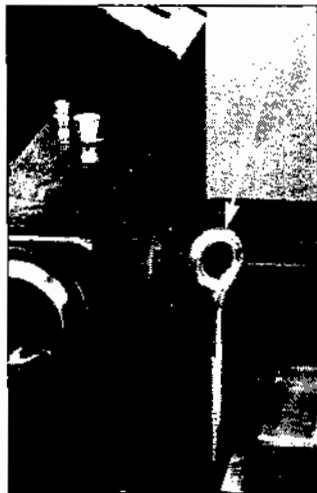


Figure 1

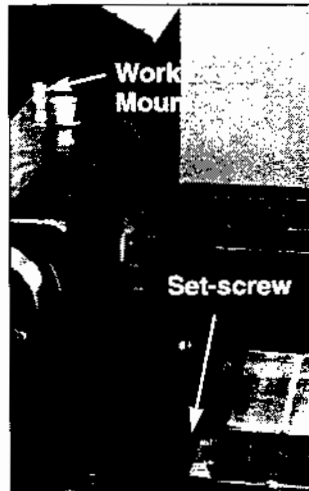


Figure 2

5. Install handwheel handles and motor bracket handle.

## PREPARING FOR USE

1. Remove the rust-preventative on the machine ways with an approved commercial solvent. The dove tail ways should be kept dry and should always be free from grease, oils, etc.
2. Unwrap all adapters and accessories. Clean with an approved commercial solvent. Check for any damage during shipment such as burrs, nicks, scratches, etc. Remove minor nicks and scratches with a fine file or sharpening stone. Apply a protective coat of very light oil to prevent parts from rusting.
3. Hang adapters on a tool board to protect from damage while not in use.
4. Unpack work light. Mount on top of spindle housing (**Figure 2**). Plug into outlet provided on rear of electrical control box.
5. Plug machine into appropriate electrical outlet. Refer to the Electrical Requirement Section if there is any doubt regarding the correct procedure. To turn on the lathe, pull the POWER switch (**Figure 3**). The spindle should turn clock-wise.

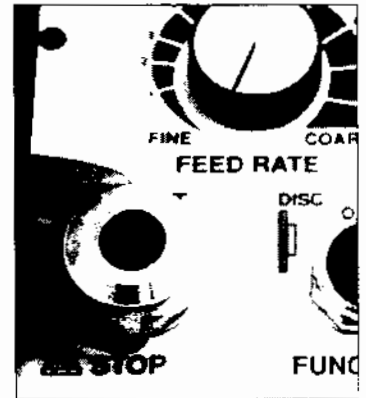
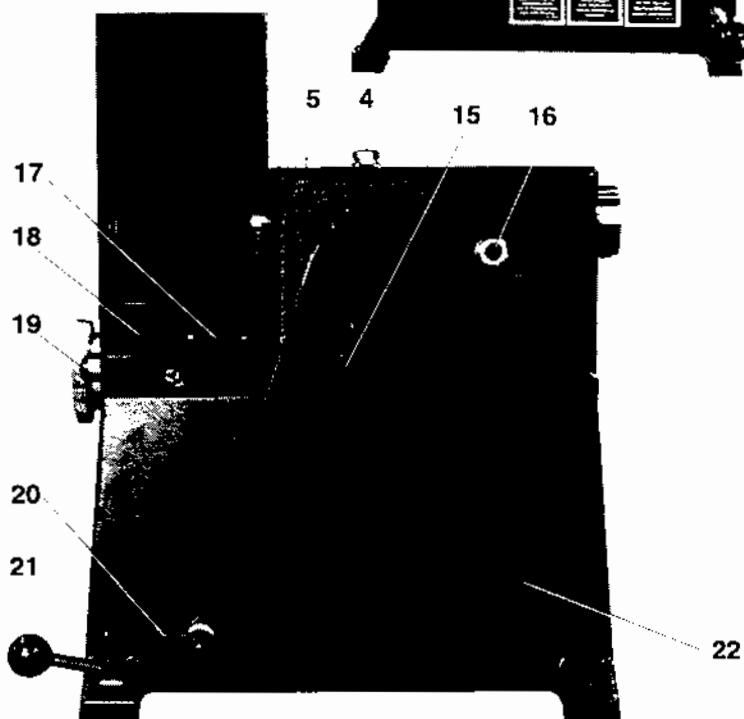
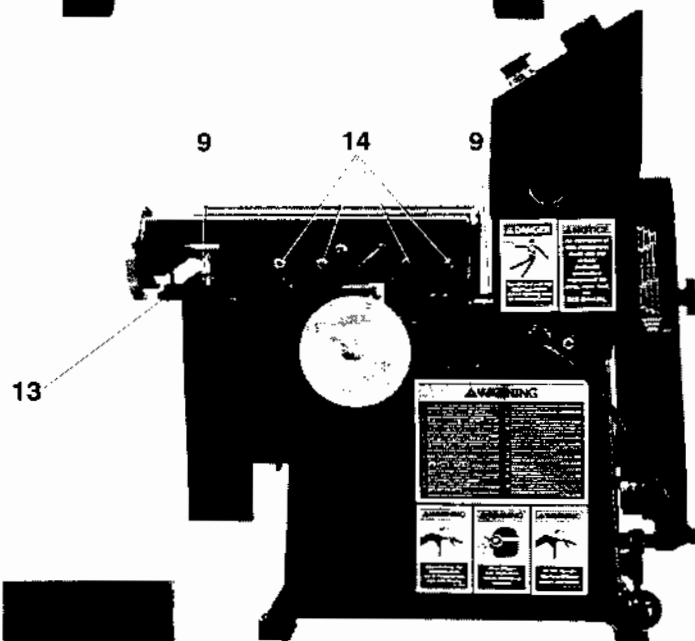
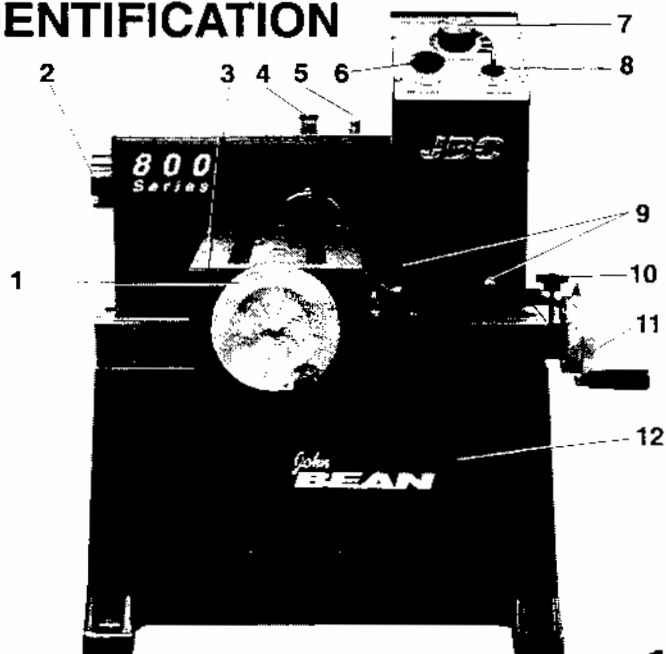


Figure 3

# COMPONENT & CONTROL IDENTIFICATION

1. Disc Slide Handwheel (cross feed)
2. Spindle
3. Drum Slide Gib Adjustment Screws and Lock (behind slide)
4. Oil Fill Plug & Breather
5. Work Light Mount
6. Main Power Switch & Emergency Stop
7. Feed Rate Control for both drum and disc
8. Function Switch — selects the drum or disc slides
9. Limit Switches — one for the drum slide and one for the disc slide to prevent overtravel during power feed operation.
10. Drum Slide Feed Screw Lock
11. Drum Slide Handwheel (traverse feed)
12. Variable Speed DC Gear motors (behind cover)
13. Disc Slide Feed Screw Lock (behind handwheel)
14. Disc Slide Gib Adjustment Screws & Lock
15. Belt Guard and Knob
16. Oil Level Sight Glass
17. Outlet for Work Light
18. Fuse for DC Circuit Board
19. Power Cord
20. Motor Bracket Clamp
21. Motor Bracket Handle
22. Spindle Motor (inside base)



## SPECIFICATIONS

|                                         |                       |
|-----------------------------------------|-----------------------|
| Motor .....                             | 1 HP                  |
| Spindle speeds .....                    | 60, 120, 170 RPM      |
| Feed speeds, infinitely variable 0 to — |                       |
| Per min. ....                           | 2.10" (53 mm)         |
| Per rev. @ 60 RPM.....                  | 0.035"                |
| Per rev. @ 120 RPM.....                 | 0.018"                |
| Per rev. @ 170 RPM.....                 | 0.012"                |
| Rotor size                              |                       |
| Maximum diameter.....                   | 24" (609 mm)          |
| Maximum thickness .....                 | 2.5" (63 mm)          |
| Drum size                               |                       |
| Minimum diameter .....                  | 6" (152 mm)           |
| Maximum diameter.....                   | 28" (711 mm)          |
| Maximum depth.....                      | 9" (229 mm)           |
| Machine Net weight .....                | 405 lbs. (184 kg)     |
| Shipping weight .....                   | 535 lbs. (243 kg)     |
| Lathe Bench (optional)                  |                       |
| Size .....                              | 22" x 38" x 71"       |
| .....                                   | (559 x 965 x 1803 mm) |
| Weight.....                             | 140 lbs. (64 kg)      |

JBC is committed to product innovation and improvement and therefore reserves the right to change product specifications without notice.

## INSTALLATION OF ARBOR

1. The 1" diameter arbor is included with the 800 Series as standard equipment and is capable of handling work pieces up to 150 lbs. If the work piece is heavier than 150 lbs, it will be necessary to use the optional 2" Heavy Duty Arbor.
2. Insert arbor into spindle taper (**Figure 4**).  
**IMPORTANT:** Both the arbor and the spindle taper must be clean, otherwise arbor will have run out and the taper may be damaged. Align pin in arbor with slot in main spindle. Screw in draw bar (**Figure 5**) and tighten (**Figure 6**). **DO NOT** tighten excessively. Driver pin will prevent arbor from slipping. To remove arbor easily (arbor has a non-locking taper) loosen draw bar slightly and tap lightly on the end of the draw bar. Hold the arbor with one hand to prevent arbor from falling while unscrewing draw bar.

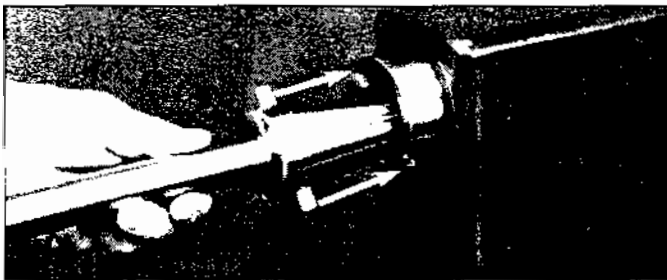


Figure 4



Figure 5

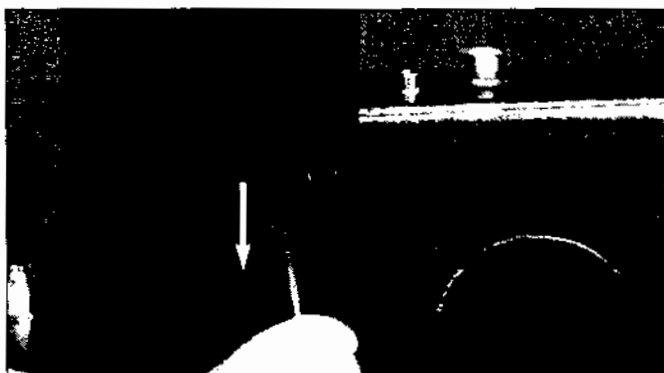


Figure 6

### **⚠ NOTICE**

3. Don't hammer upward or downward on draw bar as damage may occur to both arbor and draw bar.

## SELECTING THE SPINDLE SPEED

### **⚠ NOTICE**

**MAKE CERTAIN POWER SWITCH IS IN THE OFF POSITION** before changing the spindle speed.

1. The 3 spindle speeds on the 800 Series are 60, 120, & 170 RPM's. To select the desired speed, remove the belt guard by unscrewing the belt guard knob at the rear of machine (**Figure 7**). Loosen the belt tensioning lock by pushing down on the lever (**Figure 8**). Lift the motor bracket handle which will raise the motor and allow the belt to be moved to a different pulley groove (**Figure 9**).



Figure 7



Figure 8



Figure 9

2. The outer pulley groove (high speed) is for the smaller rotors and drums, and the inner pulley groove (low speed) is for the very large rotors and drums. John Bean Company recommends that the operator start out in the middle pulley groove (**Figure 10**) and then adjust the desired spindle speed upward or downward from that point. Belt must be aligned in the same upper and lower pulley groove position.
3. Proper tension is applied to the belt by lowering the motor bracket handle and allowing the weight of the motor to tension the belt. No additional downward force is required. Tighten the motor bracket clamp by moving the lever upward. **DO NOT** overtighten belt.



Figure 10

4. Before starting the lathe replace the belt guard and belt guard knob.

## SELECTING THE FEED DIRECTION

1. The 800 Series Function Switch selects the proper feed direction (Figure 11). With the switch setting on **DISC**, the machine will feed across the face of the rotors. When the switch is set on **DRUM** the slide will feed left to right for machining drums.

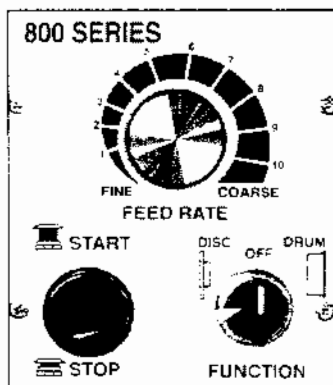


Figure 11

2. Whenever the machining operation has been completed, always move the switch into the neutral "OFF" position.

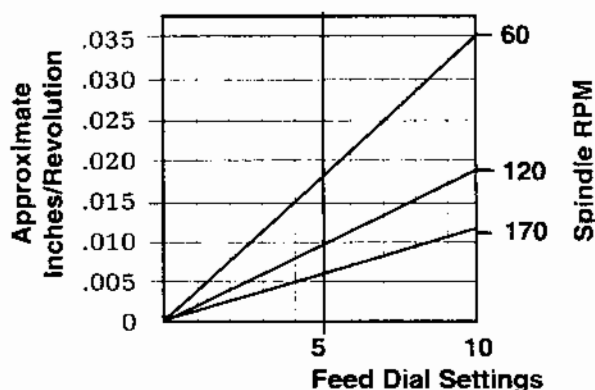
## SELECTING THE FEED RATE

1. The 800 Series features an infinitely variable feed on both the disc slide and the drum slide. This will allow the operator to totally control surface finish and machining time for drums and discs. Refer to chart below for the spindle speed/feed rate ratio to determine the optimum feed rate.
2. The Feed Rate Knob (Figure 12) can be adjusted from a setting of "0" (no feed) to "10" (fast feed), or any position in between. The lower the number, the slower the feed, and the smoother the finish -- the higher the number, the faster the feed, and the coarser the finish.



Figure 12

## SPINDLE SPEED/FEED CHART APPROXIMATE INCHES/REVOLUTION AT VARIOUS RPM AND FEED DIAL SETTINGS



## ENGAGING THE FEED

1. Both the disc slide and the drum slide can be manually operated in either direction by turning the handwheel. The disc slide feed lock knob (Figure 13) and the drum slide feed lock knob (Figure 14) however, must be loosened in order for the slides to be manually operated.

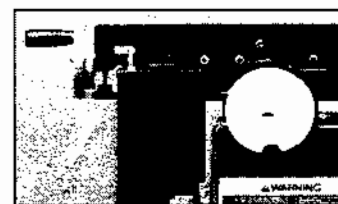


Figure 13



Figure 14

2. To engage the power feed on the disc or drum slide requires the operator to tighten the disc slide feed lock knob or the drum slide feed lock knob. **The power feed will not operate properly without these knobs tightened.**
3. When the machining operation has been completed shut lathe off and loosen the knob to prepare for the next job.

## DEPTH OF CUT DIAL

1. The drum depth-of-cut micrometer is located on the cross slide handwheel (Figure 15). This handwheel is used for moving the tool bit into the brake drum. The dial has a scale to indicate amount of material to be removed from the drum diameter.
2. The divisions on the handwheel dial are 0.002" and the scale is direct reading. For example, if the scale is increased .016" (8 divisions) there will be .008" removed from the side of the drum increasing the diameter by .016". No calculations have to be made by the operator.

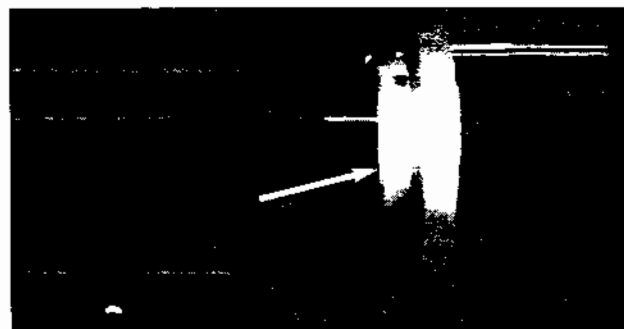


Figure 15

# PREPARING DRUMS FOR MACHINING

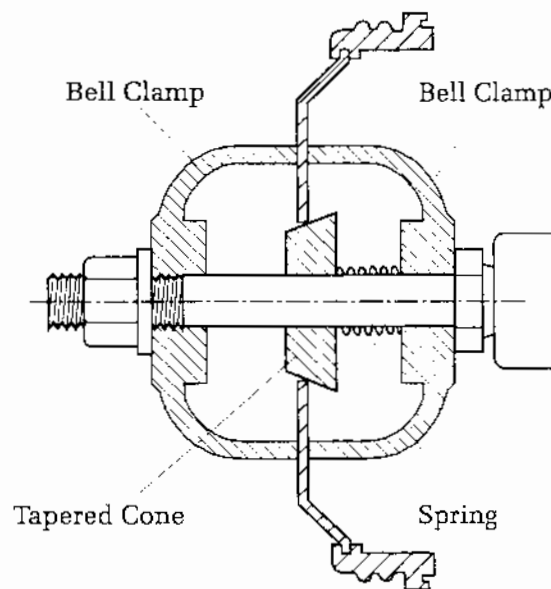
1. First, measure the diameter of the drum with a micrometer to determine that the drum will be within maximum reboring limits after reconditioning. The drum should also be in good general condition.

**THE MAXIMUM REBORING LIMIT DIMENSION IS CAST INTO THE DRUM BY THE MANUFACTURER. NEVER EXCEED THIS LIMIT OR THE DRUM COULD FAIL IN USE RESULTING IN BRAKE FAILURE.**

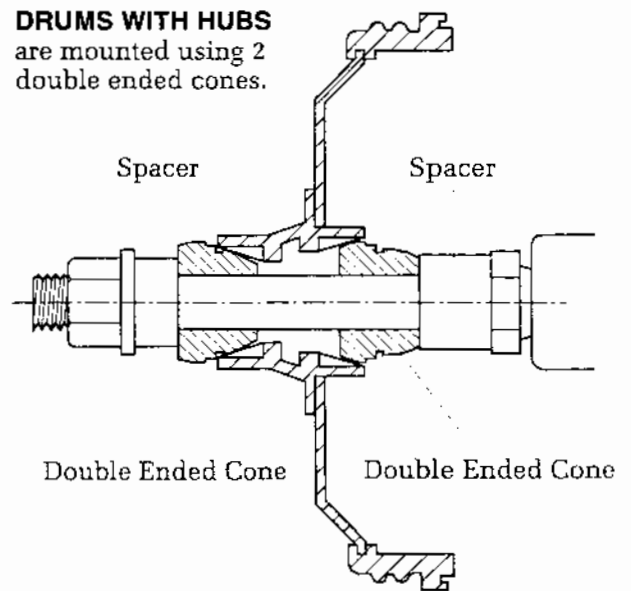
**IMPORTANT:** To prevent galling, scratching the newly machined surface clean the drum before mounting. Use a wire brush or a rotary wire brush in a drill to thoroughly clean all mounting surfaces. Make certain all rust is removed from both inside and outside bolt patterns and that the inside diameter of the center bore is absolutely clean and free from any burrs.

## MOUNTING DRUMS

1. **HUBLESS DRUMS** are mounted using 2 bell clamps, a tapered cone, a spring, and spacers. Make certain the mounting pads of the bell clamps are clean and free of nicks, burrs, etc. Mount the drum as shown:



2. **DRUMS WITH HUBS** are mounted using 2 double ended cones.

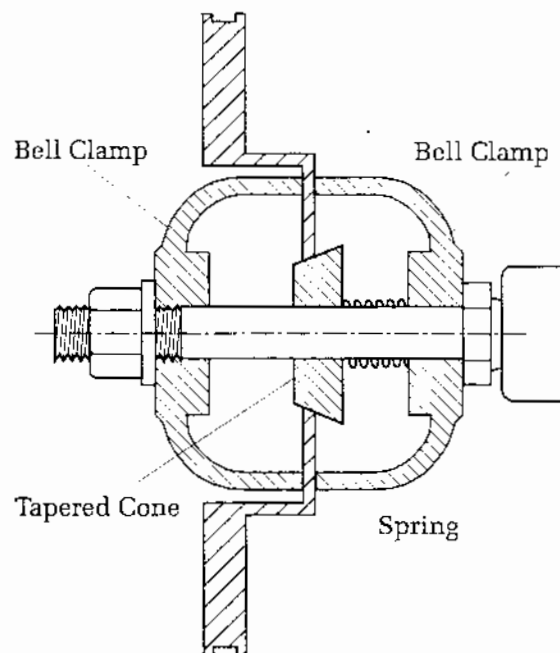


## PREPARING DISCS ROTORS FOR MACHINING

1. Before machining, each disc rotor should be carefully inspected for scoring, rust, ridges (at the inner and outer circumference of the rotor) and hard spots. Any excessive wear or deformity should be noted and, if not within acceptable limits, the rotor should be replaced.
2. Using a micrometer, check the thickness of the rotor in at least three points around the circumference about 1" (2.54 cm) in from the outer diameter. If the rotor thickness varies between readings it should be machined. However, if the thickness is less than the minimum established by the rotor manufacturer, or it will be after resurfacing, the rotor should be replaced.

**THE MINIMUM REFINISHED THICKNESS DIMENSION IS CAST INTO THE ROTOR. NEVER MACHINE BEYOND THIS LIMIT OR THE DISC COULD FAIL IN USE RESULTING IN VEHICLE BRAKE FAILURE.**

**IMPORTANT:** Clean the disc before mounting. Use a wire brush or a rotary wire brush in a drill to thoroughly clean all mounting surfaces. Make certain all rust is removed from both inside and outside bolt patterns and that the inside diameter of the center bore is absolutely clean and free from any burrs.

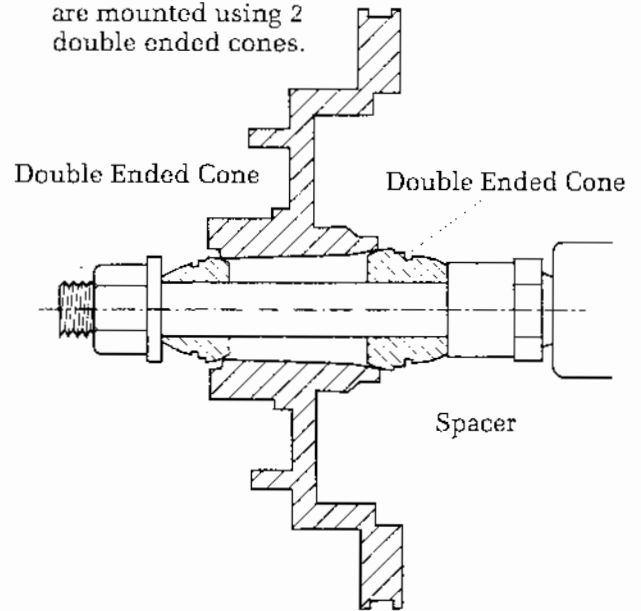


## MOUNTING DISC ROTORS

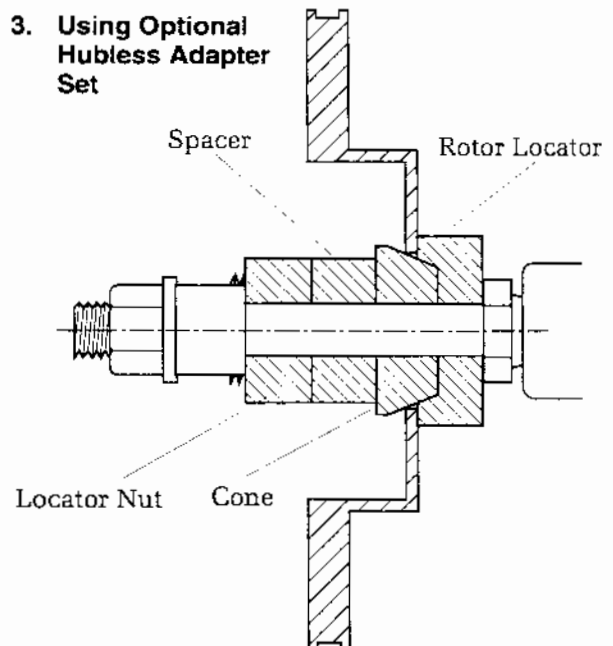
1. **HUBLESS DISCS** are mounted using 2 bell clamps, a tapered cone, a spring, and spacers. Make certain the mounting pads of the bell clamps are clean and free of nicks, burrs, etc. Disc Rotors should be mounted as close to the spindle as possible.

**THE ARBOR NUT SHOULD NOT BE OVERTIGHTENED.**

2. **DISCS WITH HUBS** are mounted using 2 double ended cones.



3. **Using Optional Hubless Adapter Set**



# MACHINING DRUMS

## ⚠ WARNING

Wear proper eye protection when operating machine.

1. After the drum is mounted on the arbor, wrap and secure the drum silencer band tightly around the drum (**Figure 16**). Cover as much of the outside of the drum as possible.
2. Assemble and mount the drum tool bar on the slide as illustrated (**Figure 17 & 18**).



Figure 16



Figure 17



Figure 18

3. Position the tool bar by loosening the tool bar clamp nut (**Figure 19**) and sliding the tool bar inward toward the drum until the tool bit is close to the surface that is going to be machined. The entire tool bar assembly may also be swiveled to achieve the best cutting position.

## ⚠ CAUTION

Make certain the set screws and tool bar clamp nut are tight before machining.

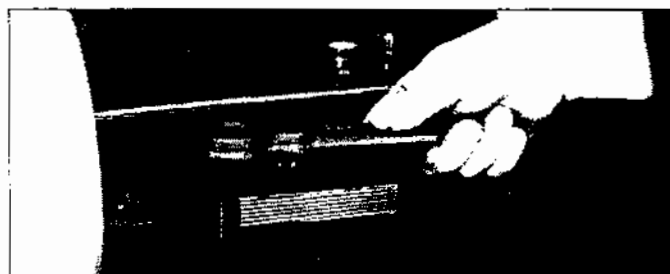


Figure 19

4. On smaller drums position the tool bar and bit at the outer edge of the drum to insure that the tool bar will not contact the spindle housing during machining. It may be necessary to use spacers to position the drum further out on the arbor to allow clearance for the tool bar. On 6" diameter drums the inner clamp bell and spring should be replaced with spacers to allow room for the cutter bit.

5. Turn the lathe on and advance the tool bit until it just contacts the drum surface and makes a scratch cut. Back the tool bit off and stop the lathe. Loosen the arbor nut and rotate the drum one-half turn. Retighten the nut, turn the lathe on and make a second scratch cut, stop the lathe. If the first and the second scratch cuts are opposite each other (180° apart) remove the drum from the arbor. Check the mounting adapters and the arbor for nicks, burrs, or chips. Clean if necessary. If the first and second scratches are side by side, proceed in machining the drum.
6. Turn the traverse feed handwheel (**Figure 20**) until the deepest worn groove of the drum is opposite the point of the tool bit. Advance the tool bit into the bottom of the groove by turning the cross feed handwheel (**Figure 21**) counterclockwise. Note handwheel reading then back off (clockwise) 1/2 turn. Move cutter to inside edge of surface to be machined using the traverse feed handwheel.



Figure 20



Figure 21

7. Reset the depth of cut by turning the cross feed handwheel to the reading obtained in "No. 6" above. Lock the cross feed slide lock (**Figure 22**). This will keep the slide in a fixed position for an accurate machining job.



Figure 22

8. Turn on main power to start spindle. Turn drum slide feed screw lock in to keep feed screw from turning. Set feed rate to "0" and position function switch to **DRUM**. Slowly increase feed rate until desired feed is obtained.
9. After cut is complete turn function switch to "Off" and shut off main power. Examine drum for complete clean-up. If additional cuts are required repeat steps 7 and 8.
10. If the drum is to be finished in a single pass use a slow feed rate. If a roughing cut is being made then a faster feed rate may be used for the first cut and a slow feed rate for the final cut.

# MACHINING DISC ROTORS

## **⚠ WARNING**

Wear proper eye protection  
when operating machine.

### MOUNTING TWIN CUTTER ASSEMBLY

1. Position traverse slide to the extreme left (**Figure 23**) and the cross slide in toward the spindle housing.
2. Before mounting the twin cutter assembly be sure the 2 triangular inserts are installed (**Figure 24**) and that the arms are positioned wide enough to straddle the disc rotor. Mount the twin cutter nut to the slide using the stud, spacer block and flange. (**Figure 25**). Select the hole that allows the cutters to be just inside the smallest diameter to finish and still be reasonably square with the slide. Tighten flange nut just enough to hold twin cutter assembly securely.

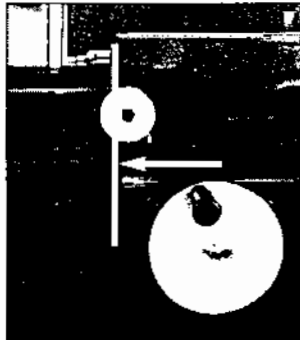


Figure 23



Figure 24

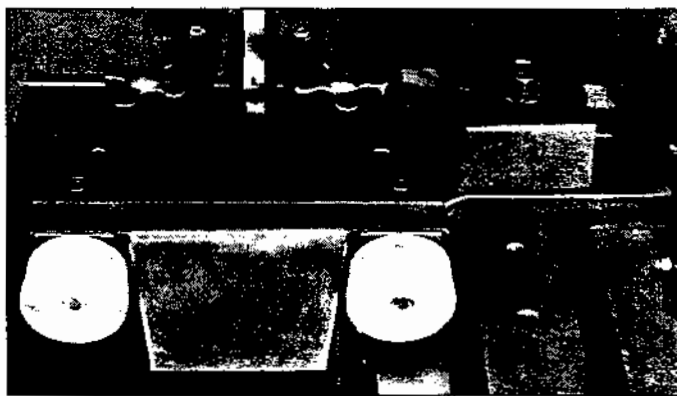


Figure 25

3. Install the rubber silencer band to the vented rotor. This is easily done by stretching the band evenly around the outside of the rotor and hooking the metal loop over one of the lead weights on the band (**Figure 26**). Make certain the band is hooked securely to prevent accidental release of the band during operation. For the non-vented rotors use a magnetic solid rotor band or a solid rubber band and attach to the circumference of the rotor (**Figure 27**).



Figure 26



Figure 27

### SCRATCH CUTS

1. Using the cross slide, position the twin cutter assembly so that the tool bits are about in the center of the rotor surface (**Figure 28**).



Figure 28

2. Start spindle and bring one of the tool bits into contact with the rotor face using the traverse slide. Once contact has been made return traverse slide to original position. (Be sure twin cutter arms are secured with clamp knobs).
3. Loosen arbor nut and rotate disc 180° being careful not to rotate adapters. Tighten arbor nut and make another scratch cut as in step 2 above after moving cross slide position about .100".
4. If the first and the second scratch cuts are opposite with each other (180° apart) remove the rotor from the arbor. Check the mounting adapters and arbor for nicks, burrs, or chips. Clean if necessary remount, and run scratch test again.
5. Turn the lathe on and advance the tool bit until it just contacts the disc surface and makes a scratch cut. Back the tool bit off and stop the lathe. Loosen the arbor nut and rotate the disc one-half turn. Retighten the nut, turn the lathe on and make a second scratch cut, stop the lathe. If the first and the second scratch cuts are opposite each other (180° apart) remove the disc from the arbor. Check the mounting adapters and the arbor for nicks, burrs, or chips. Clean if necessary. If the first and second scratches are side by side, proceed in machining the disc.

## ROUGH AND FINISH CUTS

1. Move cross slide in until both cutter bits are over the smallest diameter to be machined. Lock traverse slide using lock handle on back side of slide (**Figure 29**).



**Figure 29**

2. Move cross slide in toward the spindle until the cutters are just clear of the inside machined surface diameter (**Figure 30 & 31**). Turn cutter arm dials clockwise the amount that is to be removed from each side of the disc. Securely tighten cutter arm lock knobs.
3. Lock the traverse slide lock (**Figure 29**). This will keep the slide in a fixed position for an accurate machining job.



**Figure 30**



**Figure 31**

4. Turn on main power to start spindle. Turn disc slide feed screw lock in to keep feed screw from turning. Set feed rate to "0" and position function switch to **DISC**. Slowly increase feed rate until desired feed is obtained.
5. After cut is complete turn function switch to "Off" and shut off main power. Examine disc for complete clean-up. If additional cuts are required repeat steps 3 and 4.
6. If the disc is to be finished in a single pass use a slow feed rate. If a roughing cut is being made then a faster feed rate may be used for the first cut and a slow feed rate for the final cut.

# MAINTENANCE AND SERVICE

## SCHEDULED MAINTENANCE

### 1. DAILY:

Clean all surfaces to remove chips and dirt. Use a brush or a shop vac. To prevent metal in machine bearings **NEVER** use compressed air to clean the 800 Series Brake Lathe.

### 1. WEEKLY

Apply dry graphite lubricant to the dovetail ways. **DO NOT** use grease or oil on the ways or leadscrew since this collects chips and causes accelerated wear.

## GENERAL MAINTENANCE INFORMATION

### 1. SPINDLE

The spindle is supported on a pair of wear life tapered roller bearings that run in an oil bath. The spindle housing is filled with #40 non-detergent motor oil. The oil will not require changing under normal use. To change oil, remove belt guard to access drain tube. Remove cap on tube and drain oil into container. Replace cap on drain tube. Clean area around breather/fill plug, remove plug and fill with 14 oz. #40 non-detergent motor oil.

### 2. MOTORS

The 1 HP spindle motor and the two DC gear motors are totally enclosed and do not require maintenance.

### 3. DOVETAIL WAYS GIB ADJUSTMENT

If it becomes necessary to adjust the gibs on the dovetail ways it can be easily done using a 1/8" hex wrench and a 7/16" open end wrench. Loosen the hex nuts (**Figure 32**) then turn the set screws in just until there is resistance (**Figure 33**). While holding the set screw from turning, tighten the hex lock nut. When all screws are properly adjusted there should be no side to side play in the slide and the handwheel should turn easily with only light resistance. Overtightening the gibs will cause premature failure of the gearmotor, nut, and leadscrew.



Figure 32



Figure 33

### 4. DRIVE BELT

When drive belt becomes cracked or frayed, it should be replaced with a 4L32 or equivalent belt

### 5. CARE OF ARBORS AND ADAPTERS

The arbors, adapters, and the spindle are precision made and must be cared for to assure quality brake jobs every time. When the adapters are not in use, they should be wiped completely clean, and sprayed daily with a light rust-preventative product like WD40.

**DO NOT** store any of the adapters loose in a box or container where they might become nicked or scratched. This will cause incorrect rotor or drum alignment, resulting in inaccurate machining. Store all adapters on the individual hooks supplied with the machine.

# NM866591 WIRING DIAGRAM

Thicker Wires are 18 Ga.  
Thinner Wires are 18 Ga.

