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### ***BADER CENTERLESS MACHINE***

#### ***Installation and Operating Instructions***

##### ***I. Set-up***

- A. Uncrate
- B. Loosen two 3-16 hex head (sc#-3) bolts in side of main aluminum arm at rear of machine. Raise motor and tubes so that top of motor mount is about 1" from bottom of main aluminum arm. If purchased with belt guard, check to see that the hole in the vertical guard brace on pulley side of machine lines up with ¼ - 20 tapped hole in main aluminum arm. Adjust motor height as needed. Tighten SC-3 bolts.
- C. Assemble centerless legs, axle and wheels. Bolt legs to tapped holes in side of centerless attachment frame using ½-13 bolts provided. Be sure bent leg is located on the same side of the frame as the centerless gear motor.
- D. Bolt contact wheel portion of centerless frame to top of main aluminum arm with ½-13 hex head bolts provided. Bolts may be left finger tight to ease movement when tracking screw is turned. Loosen FSC-1 hex head bolts holding machine to floor base and tilt machine to level top face of main aluminum arm with bottom of contact wheel fork on centerless frame.
- E. Insert FSW fork in ¾" blind hole in main aluminum arm nest to contact wheel fork. Insert shoulder of FTA tracking screw in FSW fork and fasten back end of tracking screw in slot at rear left corner of the centerless frame fork with ¼ - 20 socket head cap screw provided.

- F. Attach HW-4 handwheel to top of TS tension screw.
- G. Attach handle to reversing switch with socket head set screw provided. ( not applicable to machines with magnetic starters)
- H. Attach power lead to starter box located on top of motor mount.
- I. Check motor nameplate and wiring to be sure motor is wired for required voltage.
- J. Check centerless motor nameplate and wiring to be sure motor is wired for required voltage.
- K. Check motor rotation to be sure both belt and centerless motors are running clockwise as viewed from the left side of the machine (i.e. when facing the left side of the machine the centerless attachment will be to your right and the belt head to your left.)
- L. Attach airline to air regulator on machines equipped with air belt tension units.
- M. Insert contact wheel in contact wheel fork.
- N. Insert and fasten work rest holder and roller to centerless from rails between contact wheel and regulating wheel. See III B below for proper positioning.
- O. If belt guard is supplied attach diagonal guard brace which runs from top of motor mount to side of guard with screws provided. Attach lower pan to braces below machine with hardware provided.
- P. Fasten vertical guard brace referred to in "B" above to main aluminum are with screw provided.
- Q. Attach front triangular shaped guard piece to front of guard with hinge pin provided. Adjust to cover contact wheel nip point.

## ***II. Safety***

- A. **Belt guard must be adjusted** to cover contact wheel nip point each time wheel size is changes. If purchased with out guard, one should be fabricated before machine is used.
- B. **Safety glasses must be worn at all times** by all persons in the vicinity of the machine.
- C. Partially torn and badly worn belts should be replaced immediately.

- D. Do not wear loose fitting clothing that might become caught in machine.
- E. Keep hands away from moving belt, pulleys, contact wheel and regulating wheel.
- F. Be sure gloves fit well.
- G. Do not open guard door unless motor is off and belt is stopped.
- H. Never use a contact wheel that is wider than the belt.
- I. Always work below horizontal centerline of the contact wheel.
- J. Keep area around machine clear of obstructions.
- K. Be sure guard is fully closed and adjusted before turning machine on.
- L. Bent or crooked stock must not be run unless guarded inboard and outboard feed troughs are used.
- M. Work rest must be located closer to the belt than to the regulating wheel to prevent parts from jamming between work rest and belt.
- N. Drive wheel must be kept clean of grease, oil, or any substance that might allow parts to slip against the regulating wheel face.

## ***II. Operation***

### ***A. Tracking***

- 1) Move belt by hand to test tracking. Turn handle "FTA" in direction you want belt to move
- 2) Make final adjustment under power.

### ***B. Work Rest***

- 1) Set work rest height to permit stock to contact belt slightly below horizontal center of contact wheel.
- 2) Be sure work rest is positioned to the contact wheel side of vertical center point of stock to be polished.

### ***C. Diameter Settings***

- 1) Minor diameter adjustments are made with rear handwheel.
- 2) If there is insufficient travel in hand wheel, loosen ½ - 13 bolt under centerless head and slide entire centerless head in or out as needed. Tighten bolt and make fine adjustment with handle.

- 3) Final diameter adjustment can best be made with belt and drive wheel under power.

*D. Feeding stock*

- 1) Hold stock in left hand and top centerless handle in right hand. Pull handle back( right) to widen diameter opening. Insert stock and slowly move handle forward until contact is made.
- 2) Feed speed and direction are controlled by moving the handle in the direction of desired feed. Speed is determined by angle of the handle.
- 3) Diameter setting may be locked by tightening small bent rod handle located just forward of rear hand wheel.
- 4) Feed speed and direction may be locked by tightening small bent rod handle located just forward of diameter lock handle described in 3 above.
- 5) Note: Locking of diameter setting will also inhibit free adjustment of feed speed and direction.
- 6) When above handles are both tight, lengths of stock may be dropped in from the top and allowed to traverse.

**III. Problems**

*A. Excessive Vibrations*

- 1) Stock is bowed
- 2) Work rest too high or too low.
- 3) Stock badly out of round—use softer contact wheel.

*B. Stock does not feed.*

- 1) Work rest too high or too low.
- 2) Grease or oil on drive wheel—Scrape clear or use powdered lime.
- 3) Regulating wheel running in wrong direction.

*C. Barber Poling*

- 1) Stock not fed straight through.
- 2) Belt not tacking properly.
- 3) Contact wheel and drive wheel not in line.
- 4) Contact wheel or drive wheel not running true.
- 5) Badly worn work rest.

*D. Belt changes and tension.*

**Power down machine and attachment.** Loosen HW-4 Hand wheel (or release air cylinder if air tension unit is used.) Place belt on motor and idler pulleys, then on the contact wheel. Partially tighten belt. Move belt by hand to be sure it is tracking. Make tracking adjustments by turning tacking screw handle in direction you want belt to move. Turn motor on and finish tightening belt.

When hard rubber contact wheels are used belt may be fully tightened before turning machine on. When cloth or soft rubber wheels are used, partially tighten belt, jog switch to get belt moving. Finish tightening belt under power.

*E. Tracking*

Turning the tracking screw in the direction you want the belt to move controls tracking. The belt may be tracked over edge of the contact wheel to facilitate getting into corners and following irregular shaped. Tracking problems can generally be traced to one or a combination of 3 conditions: (a) crown worn off idler pulley (b) groove worn in drive pulley (c) out of round and out of balance contact wheel. Refacing or replacing the worn pulley or wheel can solve any of the above conditions.

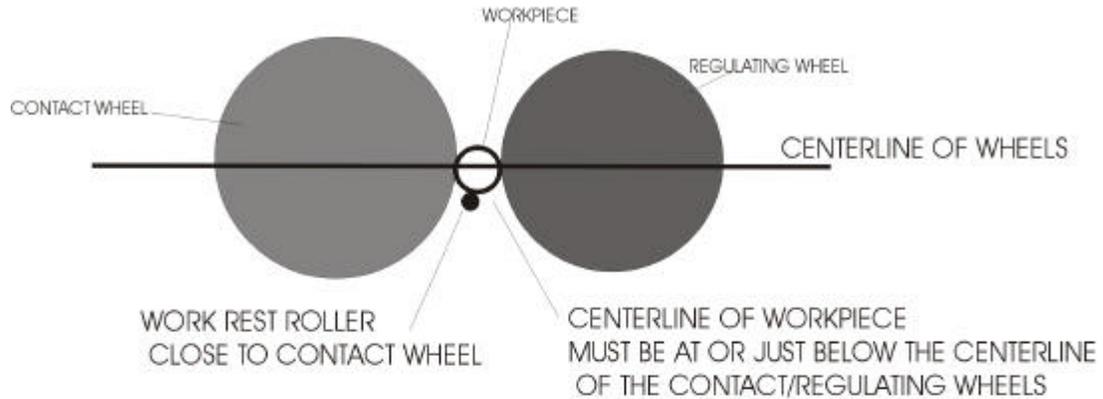
New rubber contact wheels are frequently high on one or both sides. This condition will result in the belt wanting to track over near the edge of the wheel and jump ½ “ or more off the side of the wheel. This condition can be corrected by tapering the edge of the wheel just a little by holding a piece of sharp 80-120 grit sandpaper against the high side while it is under power. Wheels partially worn may be retrued in much the same manner. *Note take all necessary precautions if attempting to dress a rotating wheel in this manner.*

*IV. Accessories*

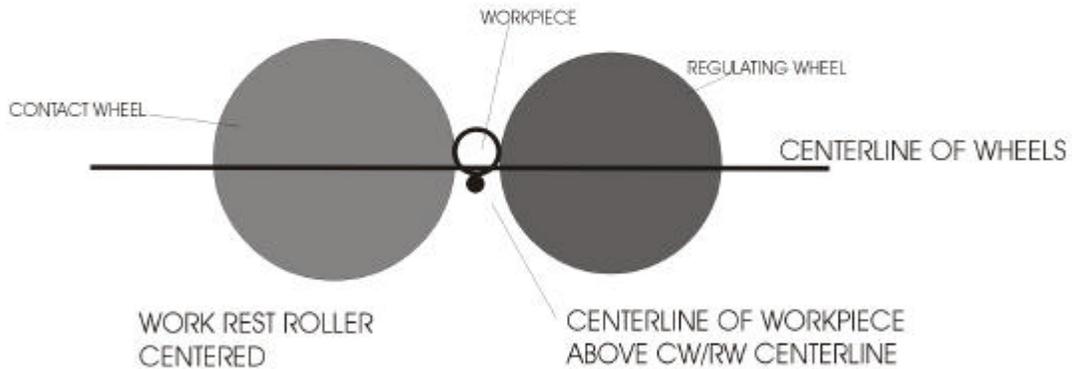
- A. **Air belt tensioner**—This unit will increase belt life by maintaining constant tension on belt. It will take up any belt stretch and ease belt changing.
- B. **Belt guards** may be purchased or supplied by customer. Belt guard is essential for operation safety and to meet OSHA regulations.
- C. **Contact wheels** of various sizes and materials are available. As a rule hard rubber serrated contact wheels are used for heavy stock removal. Soft rubber or cloth wheels are best for polishing operations.
- D. **Stock supports**—Virtually any material such as Teflon, PVC or rollers may be used to support stock on each side of machine. Caution must be taken to be sure inboard and outboard supports are of proper heights and do not offer excessive resistance to movement of stock.

*Workpiece setup*

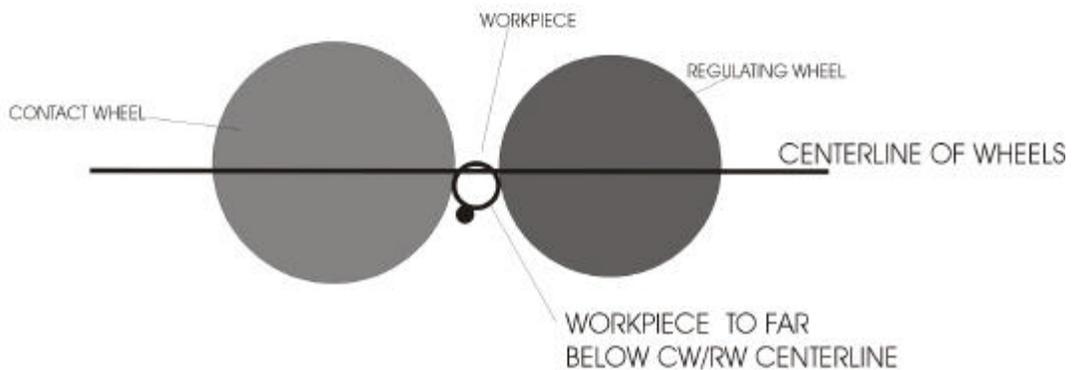
## BADER CENTERLESS MACHINE CORRECT SETUP



## WRONG - PIECE WILL POP OUT

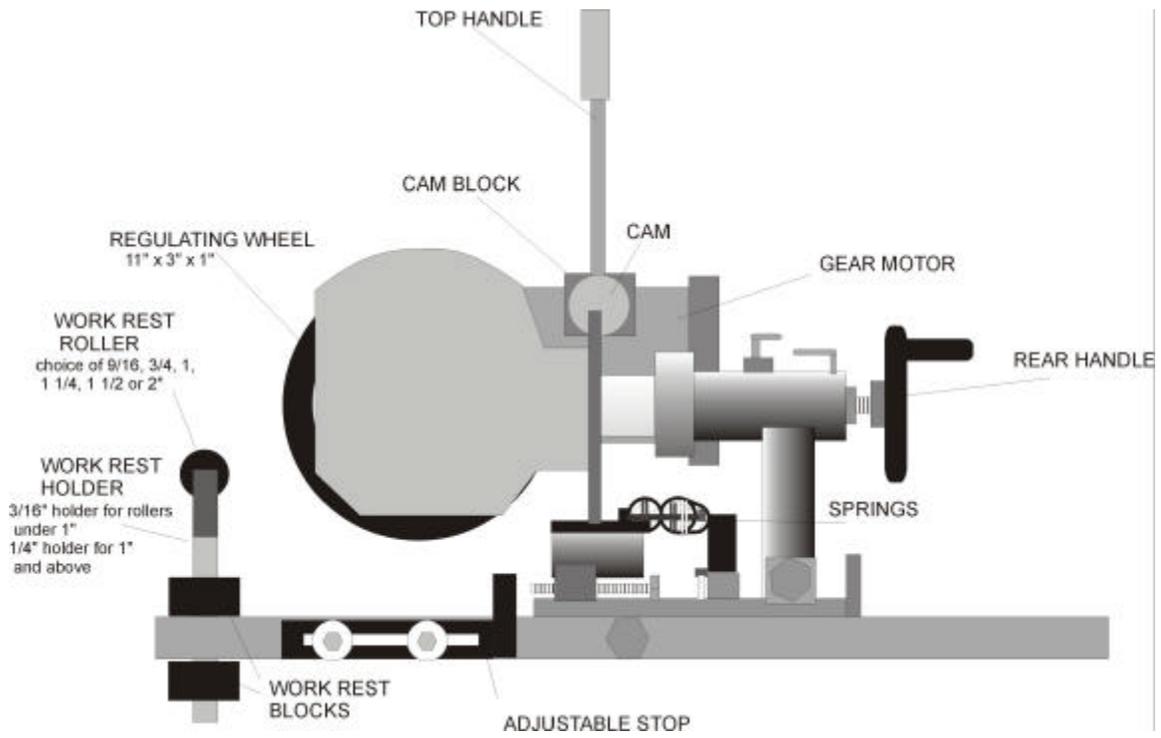


## WRONG - PIECE WILL OVER SPEED AND SLIP



## Centerless Head diagrams

### Standard Centerless



*Lineal Bearing Centerless*

**Bader lineal bearing  
Centerless Head**

