

RTI TECHNOLOGIES, INC.

BRC500 & BRC550

Arbor/Spindle Mechanism

Adjustment & Service

Technical Instructions

The arbor/spindle mechanism of the BRC500/550 is designed to be robust for long life. Occasionally an assembly error or normal service after many hours of use may require that service or adjustments be performed.

This bulletin provides the service technician with the correct disassembly, adjustment, and reassembly procedure.

Call RTI Technical Support for more information

800-468-2321 (Ext. 259)

560-80155-00

Arbor/Spindle Mechanism Adjustments & Service

The following describes the procedure to install a new Arbor. It is very important that the components not be forced. Use the proper tools to disassemble and reassemble the arbor components. Failure to follow the instructions can cause premature failure of the Arbor or other related components.

- 1) Disconnect power from the lathe. The light can be reconnected to an auxiliary extension cord to provide adequate lighting.
- 2) Remove black gear cover on right side of lathe
- 3) Remove four Torx Head screws from the Control Box (Figure 1). Use a T20 Torx Head Driver.
- 4) Tip the Control Box up and to the left. A soft, clean rag should be placed under the left side to prevent scratching the paint.



Figure 1

- 5) Remove the four Allen Screws which mount the Control Panel to the lathe (Figure 2). Use a 4mm Allen Wrench.



Figure 2

- 6) Tip the Control Panel to the left (Figure 3). Temporarily insert one of the Torx head screws into the Control Box and Panel to hold the panel out of the way. Make sure the rag is positioned to prevent scratching the Control Box.



Figure 3

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- 7) Slack must be introduced into the Drive Chain to allow the Master Link to be removed. An eccentric shaft provides adjustment to tighten and loosen the chain.

Loosen the large locking nut with an adjustable wrench and turn the square end with a 1/4 in. end wrench. Loosen until the chain is slack.

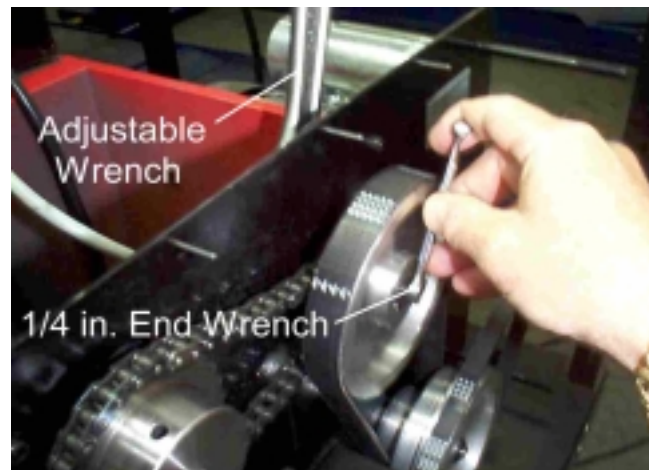


Figure 4

- 8) Rotate the Gear Pulley until the Master Link is located on the chain (Figure 5).
- 9) Remove the Master Chain Link and remove the Chain from the Gear Pulley.



Figure 5

- 10) Use a roll pin punch (3/16 in.) to drive the Roll Pin out of the Gear Pulley (Figure 6). Do not use a small or sharp pointed punch as it will expand the roll pin. Do not use excessive force.
- 11) Remove the Gear Pulley. Try applying pressure to the rear of the gear with a large screw driver while turning the Arbor. Heating the gear OD slightly may also help. Do not apply excessive force to the rear of the Gear Pulley while trying to remove it. A gear puller may be required.

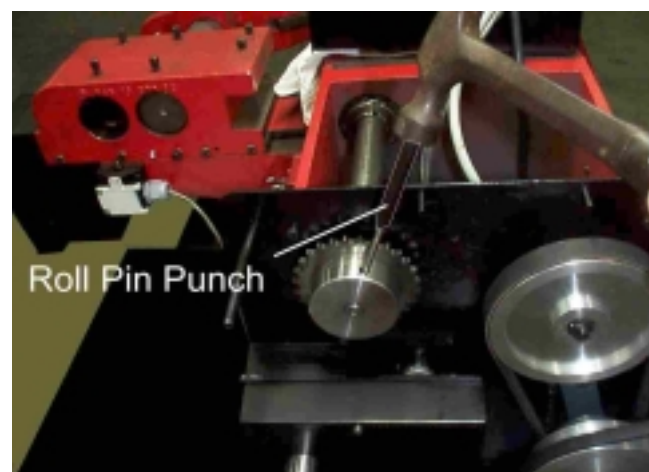


Figure 6

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- 12) Use snap ring pliers to remove the Snap Ring from the Arbor Shaft (Figure 7). Do not over extend or bend the Snap Ring.

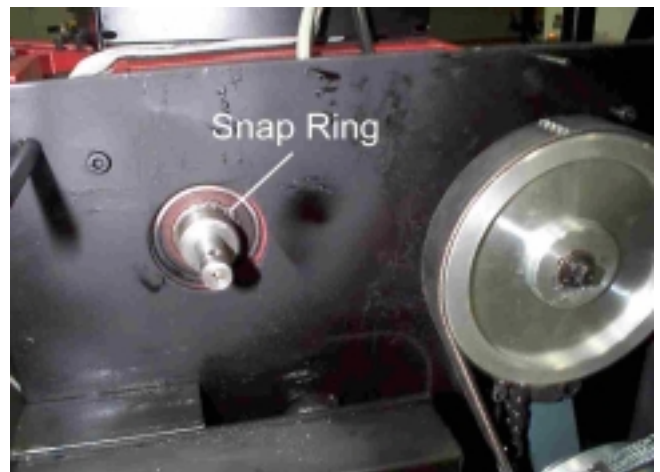


Figure 7

- 13) Bend the tab on the Locking Washer up and out of the slot of the Castellated Nut.
- 14) Hold the Arbor with a 17 mm wrench on the end and use large channel lock pliers to loosen the Castellated Nut.

Alternately: Use a wide-bladed screw driver to unscrew the Castellated Nut (Figure 8 illustrates tightening the Castellated Nut).

The Arbor Shaft can now be pulled from the bearings and removed.



Figure 8

- 15) Slide the Arbor out of the bearings. Remove the Castellated Nut, Locking Washer, and Taper Bearing (Figure 9).

Turning the Arbor while pulling will normally be sufficient to remove it.

If a hammer must be used, be sure and use a block of wood on the end of the Arbor to protect the end of the shaft.



Figure 9

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Following are the steps to reassemble the Arbor. Excessive force is not required to install any of the components. Apply grease as required to bearings and chain.

- 1) Carefully wipe any debris from the new Arbor. Slide the Arbor through the roller bearing on the left side of the main lathe casting. Place the Taper Bearing, Locking Washer, and Castellated Nut on the Arbor Shaft (Figure 9). Slide the shaft through the bearing in the right side casting.
- 2) Rotate the Arbor while **gently** pushing the Taper Bearing into the left side casting.
- 3) Thread on the Castellated Nut and finger tighten.
- 4) Hold the Arbor with a 17 mm torque wrench on the end and use large channel lock pliers to tighten the Castellated Nut to a torque of 75 ft-lbs (55 Nm). Then back off the Castellated Nut to a torque of 68 ft-lbs (50 Nm).

Alternately: Tighten the Castellated nut with a wide bladed screw driver (Figure 8).

- 5) Loosen or tighten the Castellated Nut until the Locking Washer tab closest to a slot of the Castellated Nut is in alignment.
- 6) Rotate the Arbor Shaft to check for a **slight** resistance to rotation. If a slight resistance is felt, proceed to Step 7. If no resistance is felt, tighten the Castellated Nut so the Locking Washer tab closest to the next slot in the Castellated Nut is aligned. Recheck for resistance to rotation. Then proceed to Step 7.
- 7) Bend the tab of the Locking Washer into the slot of the Castellated Nut.
- 8) Install the Snap Ring on the Arbor Shaft (Figure 7).
- 9) Press the Gear Pulley onto the Arbor Shaft, noting the alignment of the drilled holes into which the Roll Pin will go. Lubricant applied to the shaft will aid in the installation. Do not apply excessive force, the pulley should slide on without using a hammer.
- 10) Use a roll pin punch to align the hole in the Arbor Shaft with the holes in the Gear Pulley. Use a flashlight to check the alignment. Do not assume the Roll Pin will align the two.
- 11) Gently tap the Roll Pin into the Gear Pulley and Arbor Shaft (Figure 6). There should be very little added force required as the Roll Pin starts going into the shaft. Use a roll pin punch to further drive the Roll Pin in until it is centered with the shaft.
- 12) Place the Chain around the Gear Pulley and install the Master Chain Link (Figure 5).
- 13) Gently tighten the eccentric nut using a 1/4 in. end wrench (Figure 4). Check the chain tension and snug the large nut on the rear to lock in place. Again check the tension and re-adjust the eccentric and locking nuts until the chain has about a 1/16 inch vertical slack.
- 14) Check tension on the two belts and adjust as required.
- 15) Position the Control Panel on the casting and attach with four 4 mm Allen Screws.
- 16) Place the Control Box on the Control Panel. Use caution so that wires are not wedged between the panel and box.
- 17) Attach the Control Box using four Torx Head Screws.
- 18) Install the black gear cover on the right side of the lathe. Make sure the support posts are **under** the top edge of the cover.