

COLLET CLOSER

FOR MODEL BT1440G

INSTRUCTION MANUAL

FOR USE WITH METAL CUTTING LATHE MODEL BT1440G



WARNING

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Some examples of these chemicals are:

- Lead from lead-based paints.
- Crystalline silica from bricks, cement, and other masonry products.
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

Safety Instructions For Metalworking Tools

- 9. USE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. Conductor size should be in accordance with the chart below. The amperage rating should be listed on the motor or tool nameplate. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Your extension cord must also contain a ground wire and plug pin. Always repair or replace extension cords if they become damaged.

Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury.

Minimum Gauge for Extension Cords

AMP RATING	LENGTH		
	25ft	50f	100f
0-6	16	16	16
7-10	16	16	14
11-12	16	16	14
13-16	14	12	12
17-20	12	12	10
21-30	10	10	N

- 10. WEAR PROPER APPAREL.** DO NOT wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
- 11. ALWAYS USE SAFETY GLASSES.** Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
- 12. SECURE WORK.** Use properly secured clamps or vises to hold work while performing the machining operation
- 13. DO NOT OVER-REACH.** Keep proper footing and balance at all times.
- 14. MAINTAIN TOOLS AND MACHINERY WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- 15. USE RECOMMENDED ACCESSORIES.**

WARNING

- 16. REDUCE THE RISK OF UNINTENTIONAL STARTING.** On machines with magnetic contact starting switches there is a risk of starting if the machine is bumped or jarred. Always disconnect from power source before adjusting or servicing. Make sure switch is in OFF position before reconnecting.
- 17. CHECK DAMAGED PARTS.** Before further use of the tool, 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 damaged should be properly repaired or replaced.
- 18. NEVER LEAVE MACHINE RUNNING UNATTENDED. TURN POWER OFF.** DO NOT leave machine until it comes to a complete stop.
- 19. SOME COOLANTS USED FOR MACHINING MAY CONTAIN HAZARDOUS CHEMICALS.** Read and understand all user information on the coolant container and protect yourself accordingly.
- 20. NEVER OPERATE A MACHINE WHEN TIRED, OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Full mental alertness is required at all times when running a machine.

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment or poor work results.

CAUTION

INTRODUCTION

Commentary

The Model Collet Closer allows you to quickly interchange 5-C collets on your Model BT1440G Metal-Cutting Lathe. The positive-locking handle clamps standard 5-C collets safely and securely for precision turning. Bolton also offers an extensive line of precision-ground 5-C collets, ideal for use with the Collet Closer. See the latest website information

Most importantly, we stand behind our tools. If you have any service questions or parts requests, please call or write us



WARNING

Disconnect power to your lathe before beginning installation of the Collet Closer.

To begin assembly, follow these initial safety instructions.

1. **Disconnect the lathe from the power source!**
2. Remove the chuck or any other device that is mounted to the spindle. (Refer to your owner's manual.)
3. Make sure the 5-C Collet/Morse Taper Adapter (included in the kit) and the spindle opening are clean and free of oil. Use a soft cloth or rag to wipe up any contaminant.

Cover Removal

Mounting the Model G4026 requires the use of a few simple tools.

Tools Required:

- Adjustable wrench
- 3MM hex key
- 4MM hex key

To remove the lathe cover and the mounting studs:

Remove the end cover from the lathe by unscrewing the cover knobs on the left end of the lathe. The top cover knob removal is shown in **Figure 1**.



Figure 1. Lathe cover removal.

Mounting Studs

To remove the mounting stud and install the replacement stud:

1. Remove the upper mounting stud as shown in **Figure 2**.

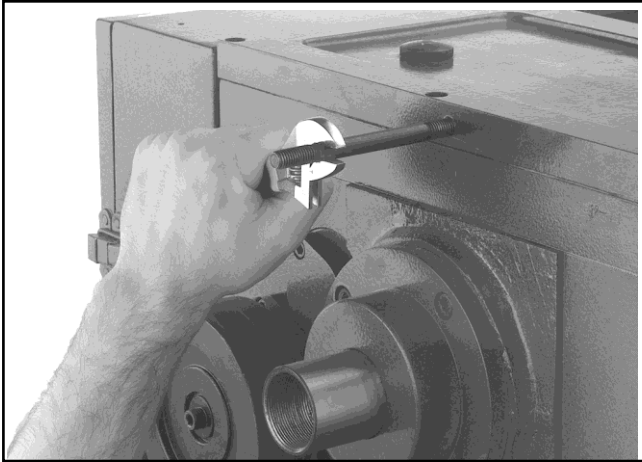


Figure 2. Mounting stud removal.

2. Install the replacement mounting stud as shown in **Figure 3**.

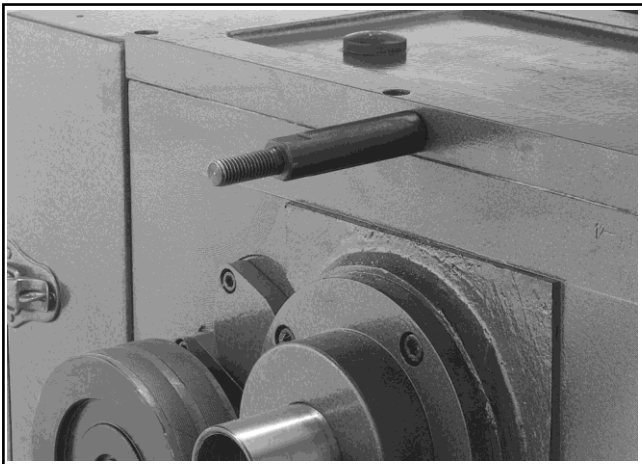


Figure 3. Replacement mounting stud installed.

3. Replace the lathe cover and secure the bottom knob.
4. Remove the hub adapter from the draw tube assembly and unscrew the setscrews until the ends are flush with the outer edge of the hub.
2. Thread the hub adapter completely into the outboard end of the lathe spindle. Secure the

Pivot Connector

To install the pivot connector:

Remove the pivoting rod connector from the draw tube assembly and thread it onto the replacement stud as shown in **Figure 4**. *Make sure you have replaced the lathe cover!*

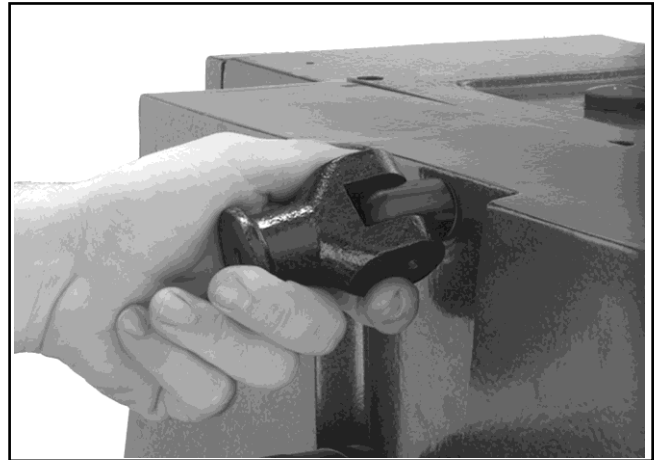


Figure 4. Installing the pivot connector.

This pivot will allow the locking yoke to be secured to the lathe while providing a range of motion to engage and disengage the locking mechanism. The pivot connector should be secured tightly to the stud and the pivot pin should be in a horizontal position, allowing the pivot to move up and down.

Hub Adapter

To install the hub adapter to the outboard spindle:

hub adapter to the spindle by tightening the setscrews shown in **Figure 5**.

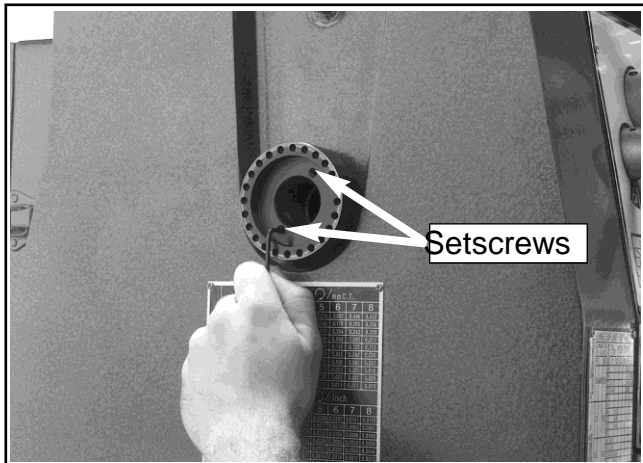


Figure 5. Installing hub adapter.

Tube Assembly

The draw tube assembly comes attached to the locking yoke and connecting rod. Remove the locking yoke and connecting rod by unscrewing the setscrews that connect the locking yoke to the bearing housing.

To install the draw tube assembly into your lathe:

1. Insert the draw tube assembly into the outboard spindle as shown in **Figure 6**. Slide the draw tube assembly all the way into the outboard spindle until it engages around the hub adapter.

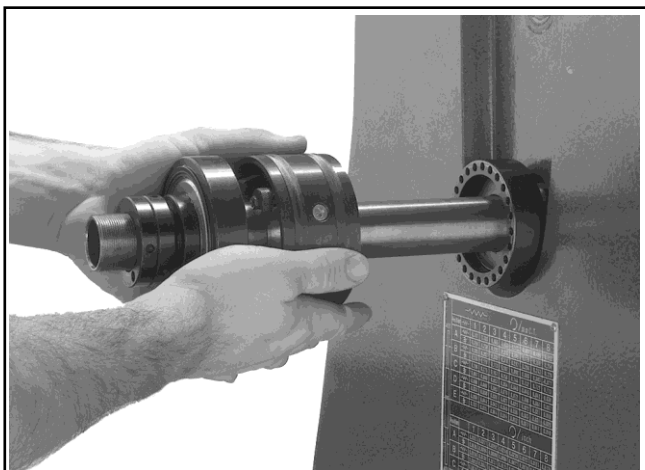


Figure 6. Inserting draw tube assembly.

2. Place the collet in the collet adapter, so the collet threads are exposed out of the back end of the collet adapter as shown in **Figure 7**.

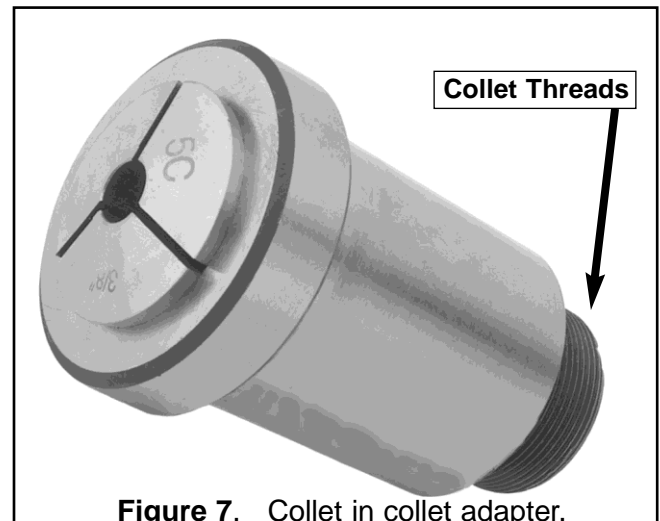


Figure 7. Collet in collet adapter.

3. Hold the adjusting hub with your left hand and thread the collet and adapter into the front spindle with your right hand to engage the draw tube, as shown in **Figure 8**.

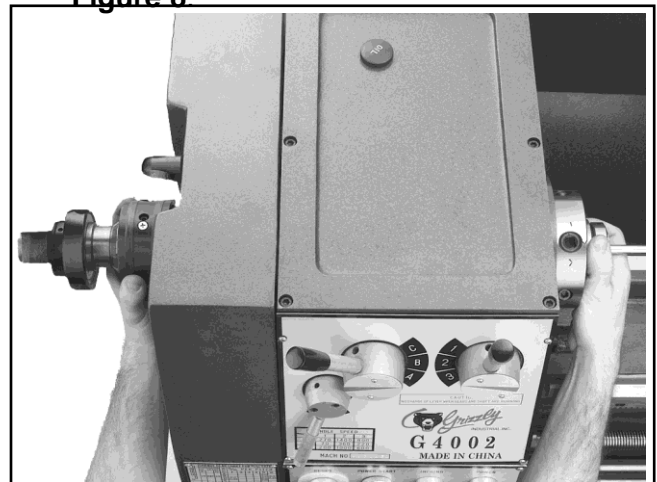


Figure 8. Rotating collet in spindle to engage with adjusting hub.

4. Turn the collet 4 to 5 complete revolutions. Additional fine adjustments will be covered later.

Locking Yoke

To secure the locking yoke to your lathe:

1. Thread the connecting rod and locking yoke onto the pivoting rod connector as shown in **Figure 9**.

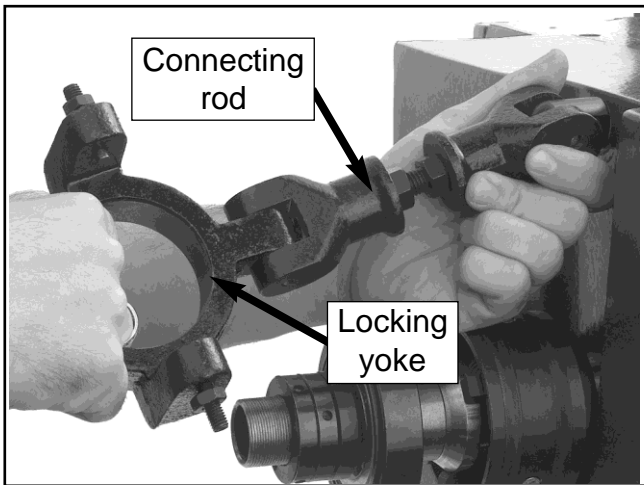


Figure 9. Connecting rod and locking yoke installed on pivot connector.

2. Please note that the rod connector is supplied with jam nuts. It may be necessary to remove these nuts to allow for the proper fit of the assembly on some lathes.
3. Install the handle to the yoke. Note—*If you have trouble positioning the locking yoke so it is aligned with the draw tube in the next two steps, adjust the length of the connecting rod by threading it more or less into the pivot connectors and try again.*

4. Make sure the locking yoke and the rod connector are secured to the mounting stud and the pivoting rod connector.
5. Position the locking yoke back inline with the setscrew holes on the draw tube assembly, then secure the setscrews and the jam nuts as shown in **Figure 10**.



Figure 10. Tightening yoke setscrews.

6. Thread the setscrews on both sides of the locking yoke into the holes on either side of the bearing housing. Make sure the setscrews are completely and evenly engaged into the holes, without being tight.
7. The yoke should have no play from side-to-side, but still pivot freely. Tighten the jam nuts.
8. The ideal locked position for the collet closer is shown in the completed assembly diagram in **Figure 11**.

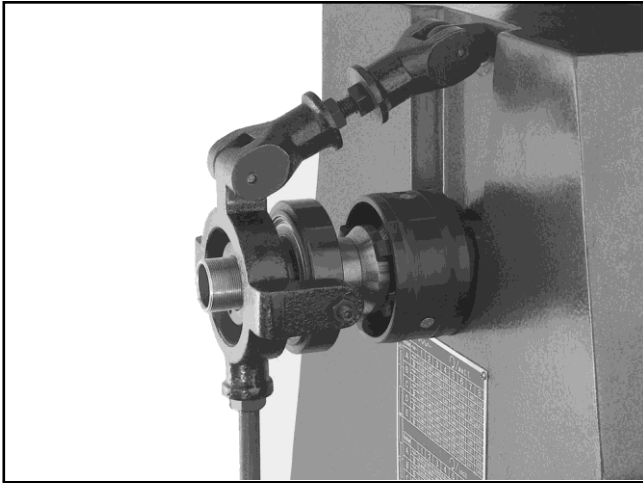


Figure 11. Completed collet closer assembly.

⚠ WARNING

Make sure proper turning clearance exists between the bearing casing and the locking yoke before operation. Serious personal injury or damage to the lathe and collet closer can occur if there is contact. Rotate draw tube and check for clearance. DO NOT make adjustments, remove workpiece or open back cover of lathe while the machine is in motion.

Locking Stroke

To adjust the locking stroke on your collet closer:

1. Position the locking pawls so they are in the correct position on the cam as shown in **Figure 12**.

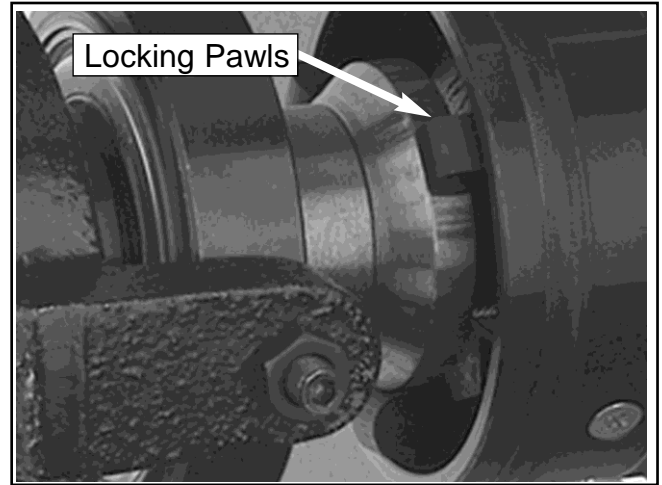


Figure 12. Locking pawls in locked position on the cam lobe.

2. Secure the 38mm spanner nut against the outboard side of the bearing housing and then secure the 30mm spanner nuts against the 38mm spanner nut as shown in **Figure 13**. Note—Be sure that the 30mm spanner with the setscrew is on the outside, with the setscrew accessible.
3. The two 30mm spanners define the stroke distance. Secure the setscrew in the outer 30mm spanner nut to lock the stroke distance.

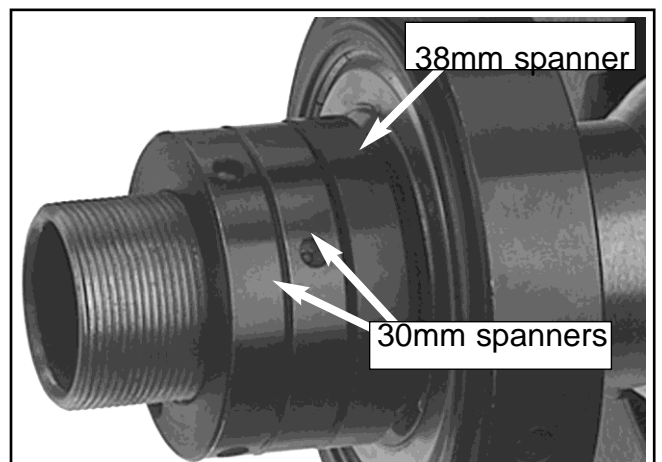


Figure 13. Spanner nut positioning for locking stroke adjustment.

The mechanism that controls the stroke is depicted in detail in **Figure 14**.

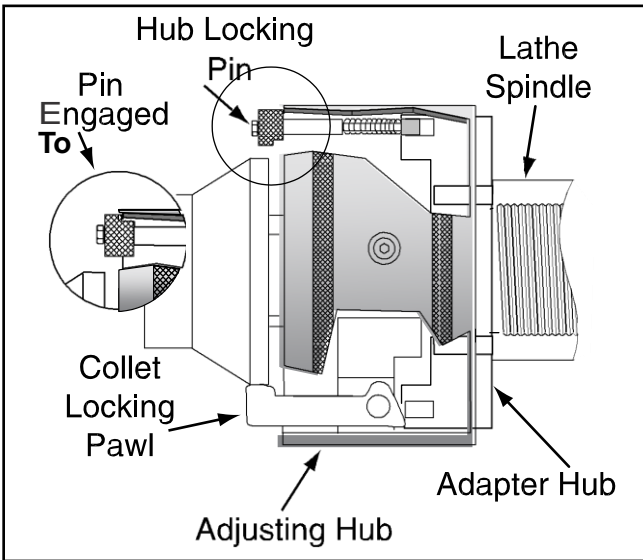


Figure 14. Stroke adjustment assembly.

Removal of 5-C Collet

To remove or replace your 5-C collet in the collet closer assembly:

1. Choose a 5-C collet that is suitable for the intended stock size to be turned.
2. Disengage the hub locking pin so the flat is turned toward the outer rim of the hub adapter as shown in **Figure 15**.

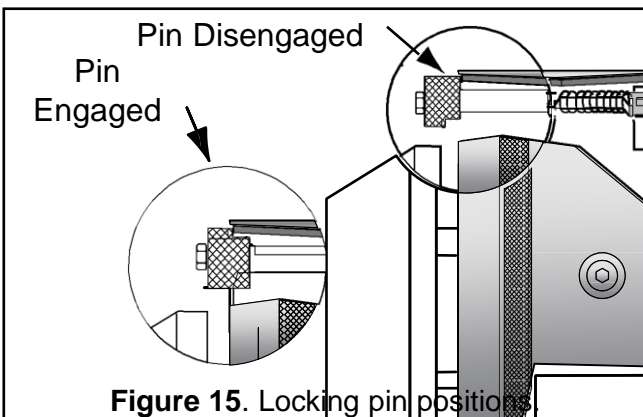


Figure 15. Locking pin positions.

3. Rotate the draw tube counter-clockwise at the end of the collet closer, as shown in **Figure 16**, to unthread the collet.

CAUTION

The draw tube threads may be sharp.

avoid cutting your hands, use a clean rag to rotate the draw tube.

4. Remove the collet from the collet adapter and insert the new 5-C collet.
5. Rotate the draw tube clockwise at the end of the collet closer to engage the new collet threads.
6. Engage the hub locking pin back into place as shown in **Figure 16**.

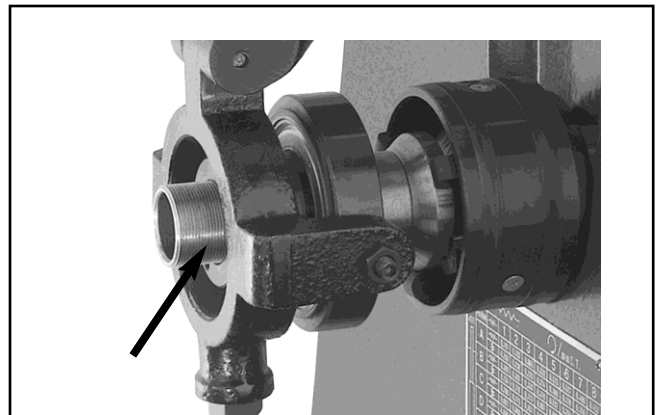


Figure 16. Location to rotate draw tube to remove or replace 5-C collets.

Installing 5-C Collet

To adjust your 5-C collet in the collet closer assembly:

1. Choose a 5-C collet that is suitable for the intended stock size to be turned.
2. Line up the collet keyway with collet adapter pin and insert the collet until it stops, then gently rotate it for final alignment.

3. Gently push on the end of the draw tube until it engages the collet threads in the spindle, and rotate the adjusting hub in a clockwise fashion (as viewed from the outboard end of the lathe in **Figure 8**).

— If the draw tube fails to touch the collet, remove the collet and look into the spindle to see if the draw tube is accessible for proper engagement. If the collet cannot touch the draw tube when inserted into the spindle, see the following section on “Rough Adjustment.”

If the collet does reach, try again to thread the collet and adapter into the spindle by following the guidelines in the “Tube Assembly” sub-section of this manual.

Rough Adjustment

If rough adjustments need to be made to the collet closer assembly:

1. In the event that the above adjustments fail to allow the collet to lock onto the material or the draw tube fails to touch the collet, adjust the adapter hub in or out.
2. Loosen the setscrews and turn the hub adapter in a clockwise direction if the draw tube does not contact the back of the collet.
3. Turn the hub adapter counter-clockwise if the work material cannot be locked by the collet.
4. Tighten the setscrews.

The Model collet Closer is adjusted properly when the 3 collet locking pawls are tight on the cam and the workpiece will not twist in the collet. Again, **Figure 12** on **page 7** shows the proper locked position of the collet locking pawls around the cam.

Maintenance

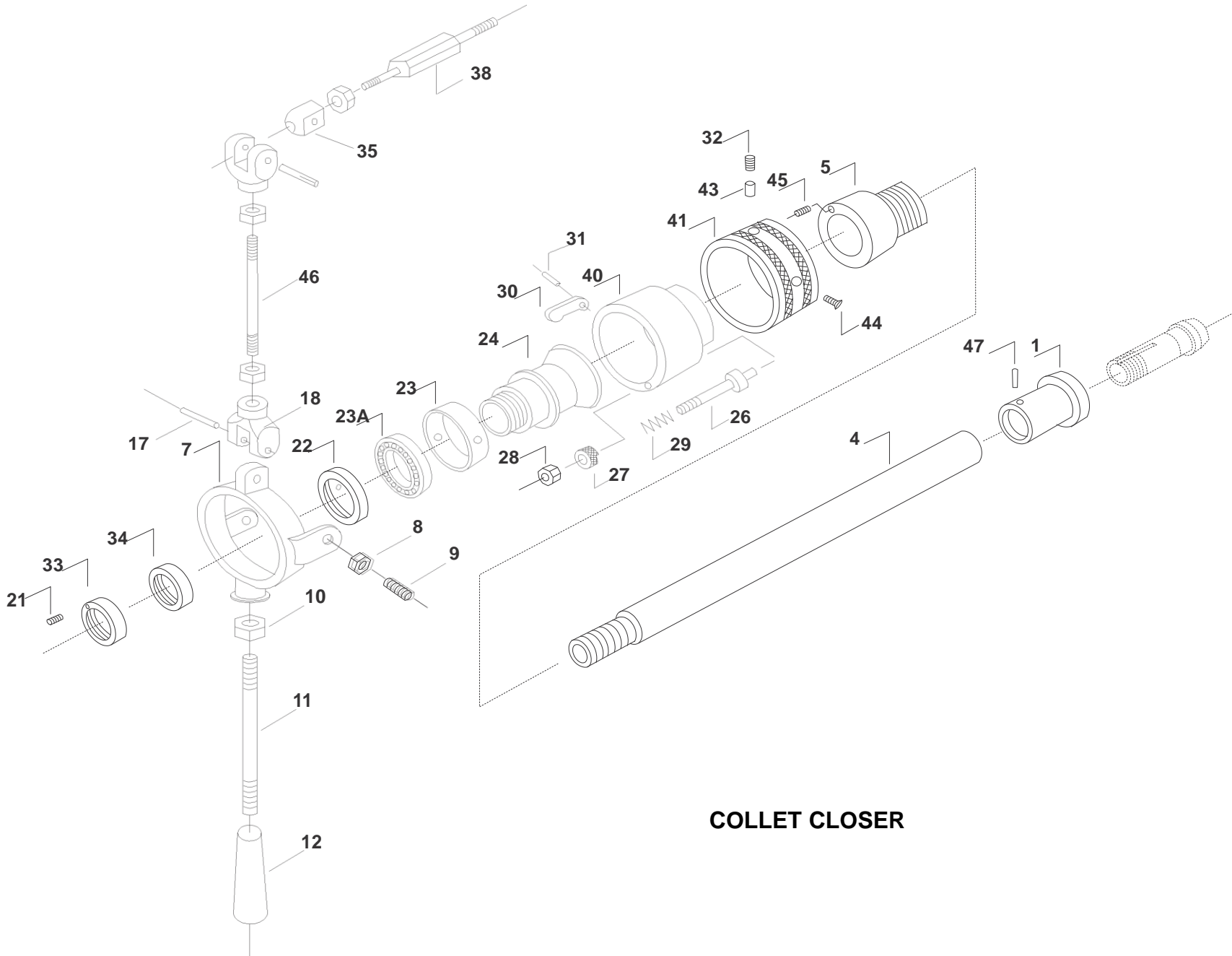
The Collet Closer is essential- ly a maintenance free tool; however, some things to keep in mind are:

1. Make sure that all the components of your collet closer are assembled correctly, according to this manual.
2. Once the replacement stud and hub adapter are installed, they will not need to be removed.
3. Ensure that your locking mechanism is working properly before you start any projects on your lathe.
4. Check the locking stroke for proper placement of locking pawls on the cams.
5. The bearings are non-serviceable. If you have problems with your bearings, you must order a new bearing pack.
6. The hub adapter must be removed in order to change gears occasionally.

Aftermarket Accessories

5-C collets do not come with the Model Collet Closer. However, they are available in the current Bolton Catalog:

- 15 piece collet set ranging in diameters from $\frac{1}{8}$ " to 1".
- Collets are also sold separately in individual sizes.



COLLET CLOSER

REF	PART #	DESCRIPTION
1	P402600	COLLET ADAPTER
4	P402600	DRAW TUBE
5	P402600	HUB ADAPTER
7	P402600	LOCKING YOKE
8	PN03M	HEX NUT M8-1.25
9	P402600	DOGPOINT SETSCREW M8-1.25 X
10	PN09M	HEX NUT M12-1.75
11	P402601	HANDLE ROD
12	P402601	HANDLE
17	P402601	PIVOT PIN
18	P402601	ROD CONNECTOR
19	P402601	THREADED ROD
21	PSS01M	SETSCREW M6-1.0 X 10
22	P402602	SPANNER NUT M38-1.25
23	P402602	BEARING SUPPORT
23	P6208	CARTRIDGE BALL BEARING 6208ZZ
24	P402602	CAM
26	P402602	LOCKING PIN
27	P402602	KNURLED KNOB M4-0.7
28	PN04M	HEX NUT M4-0.7
29	P402602	SPRING
30	P402603	COLLET LOCKING PAWL
31	P402603	PIN
32	PSS14M	SETSCREW M8-1.25 X 12
33	P402603	SPANNER NUT M30-1.25 W/ SS
34	P402603	SPANNER NUT M30-1.25
35	P402603	ROD CONNECTOR
37	P402603	STUD ADAPTER
38	P402603	MOUNTING STUD
39	P402603	COVER KNOB M12-1.75 X 18
40	P402604	SLIDING HUB SLEEVE
41	P402604	HUB SLEEVE
43	P402604	BRASS SUPPORT PIN
44	PFH07M	FLAT HD SCR M5-.8 X 10
45	PSS03M	SETSCREW M6-1.0 X 8
46	P402604	THREADED STUD 12-1.75 X2.5
47	P402604	COLLET ADAPTER PIN 3 X 6