



# MODEL T10809 WOOD LATHE CHUCK SET INSTRUCTIONS

For questions or help with this product contact Tech Support at (570) 546-9663 or techsupport@grizzly.com

## Introduction

The T10809 3<sup>3</sup>/<sub>4</sub>" Wood Lathe Chuck Set includes a scroll chuck with four self-centering bottom jaws and five top jaw sets to provide a variety of gripping needs for your wood turning projects.

## Specifications

Chuck Body Diameter ..... 3<sup>3</sup>/<sub>4</sub>"

Chuck Bore..... 1" x 8 TPI

Outside Grip Range:

— #1 Step Jaws ..... 3<sup>3</sup>/<sub>32</sub>"–1<sup>3</sup>/<sub>8</sub>"

— #2 Round Jaws ..... 1<sup>1</sup>/<sub>4</sub>"–2<sup>1</sup>/<sub>2</sub>"

— #3 Round Jaws ..... 3"–4<sup>1</sup>/<sub>4</sub>"

— Pin Jaws..... 3<sup>3</sup>/<sub>8</sub>"–1<sup>3</sup>/<sub>4</sub>"

Inside Grip Range:

— #1 Step Jaws (Upper Step) ..... 3<sup>3</sup>/<sub>4</sub>"–2"

— #1 Step Jaws (Lower Step) ..... 1<sup>1</sup>/<sub>2</sub>"–2<sup>7</sup>/<sub>8</sub>"

— #2 Round Jaws ..... 1<sup>3</sup>/<sub>4</sub>"–3<sup>1</sup>/<sub>8</sub>"

— #3 Round Jaws ..... 3<sup>1</sup>/<sub>2</sub>"–4<sup>7</sup>/<sub>8</sub>"

— Pin Jaws..... 1"–2<sup>3</sup>/<sub>8</sub>"

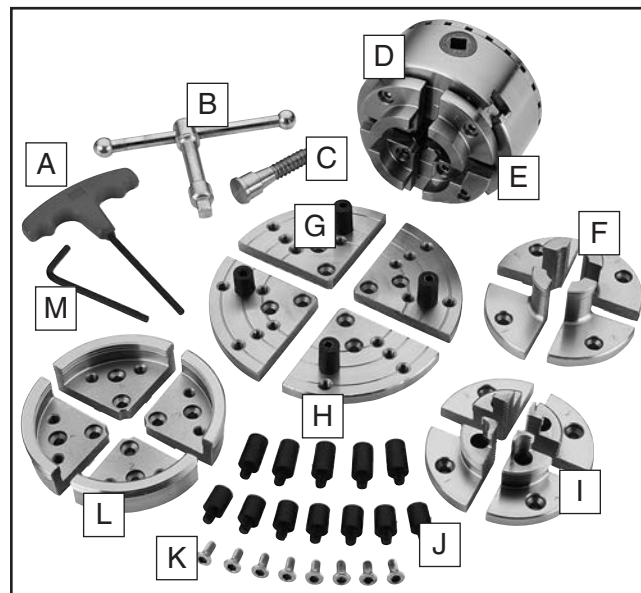
Flat Jaws Maximum Outside Diameter ..... 5<sup>1</sup>/<sub>8</sub>"

Flat Jaws Minimum Inside Diameter ..... 2<sup>7</sup>/<sub>8</sub>"

Woodworm Required Hole ..... 5<sup>5</sup>/<sub>16</sub>" x 1<sup>1</sup>/<sub>4</sub>"

## Inventory

Description:	Qty
A. T-Handle Hex Wrench 4mm.....	1
B. Lathe Chuck Key 8mm Chrome.....	1
C. Woodworm Screw.....	1
D. Chuck Body.....	1
E. #2 Round Jaws.....	4
F. Pin Jaws.....	4
G. Grip Studs 18mm, M6-1 x 6.....	8
H. Flat Jaws.....	4
I. #1 Step Jaws.....	4
J. Grip Studs 13mm, M6-1 x 6.....	8
K. Flat Head Cap Screws M5-.8 x 8.....	8
L. #3 Round Jaws.....	4
M. Hex Wrench 4mm.....	1



## **!WARNING**

To prevent personal injury, always understand and follow all safety instructions in your wood lathe owner's manual.

# Safety for Wood Lathes

## **WARNING**

Serious injury or death can occur from getting entangled in, crushed between, or struck by rotating parts on a lathe! Rotating workpieces can come loose and strike operator or bystanders with deadly force if they are improperly secured, rotated too fast, or are not strong enough for the rotational forces required for turning. Improper tool setup or usage can cause tool kickback or grabbing, resulting in impact injury or entanglement. To reduce the risk of operator (or bystander) injury or death, anyone operating this machine **MUST** completely heed the hazards and warnings below.

**VERIFY WORKPIECE INTEGRITY.** Verify each workpiece is free of knots, splits, nails, or foreign material to ensure it can safely rotate on spindle without breaking apart or causing tool kickback.

**PROPERLY PREPARE WORKPIECE.** Before mounting, cut off waste portions to balance workpiece for safe rotation and removal of large edges that can catch on tooling.

**SECURE LOCKS.** Verify tool rest, headstock, and tailstock are secure before turning lathe **ON**.

**SECURE WORKPIECE.** Use proven setup techniques and always verify workpiece (and centers/tooling holding workpiece) are well-secured before starting lathe. Only use high-quality fasteners with non-tapered heads for faceplate attachment.

**ADJUST TOOL SUPPORT.** An improperly supported tool may be grabbed or ejected. Adjust tool rest approximately  $\frac{1}{4}$ " away from workpiece and  $\frac{1}{8}$ " above workpiece center line to provide proper support for turning tool. Firmly hold turning tool with both hands against tool rest.

**REMOVE ADJUSTMENT TOOLS.** Remove all chuck keys, wrenches, and adjustment tools before turning lathe **ON**. These items can become deadly projectiles when spindle is started.

**CHECK CLEARANCES.** Before starting spindle, verify workpiece has adequate clearance by hand-rotating it through its entire range of motion.

**TEST NEW SETUPS.** Test each new setup by starting spindle rotation at lowest speed and standing to side of lathe until workpiece reaches full speed and you can verify safe rotation.

**WEAR PROPER PPE.** Always wear a face shield and safety glasses when operating lathe. Do not wear gloves, necktie or loose clothing. Keep long hair away from rotating spindle.

**USE CORRECT SPEEDS.** Select correct spindle speed for workpiece size, type, shape, and condition. Use low speeds when roughing or when turning large, long, or non-concentric workpieces. Allow spindle to reach full speed before turning.

**AVOID TOOL KICKBACK.** This occurs when turning tool is grabbed or ejected from workpiece with great force. Commonly caused by poor workpiece selection/preparation, improper tool usage, or improper machine setup or tool rest adjustment.

**SAFELY PERFORM ROUGHING.** Use correct tool. Take light cuts, use low speeds, and firmly support tool with both hands.

**USE SHARP TOOLS.** Sharp tools cut with less resistance than dull tools. Using dull tools increases the risk of tool kickback or grabbing.

**SAFELY STOPPING ROTATION.** Always allow rotating workpiece to stop on its own. Never put hands or another object on workpiece to stop it.

**SAFELY MEASURE WORKPIECE.** Only measure mounted workpiece after it has completely stopped. Trying to measure a spinning workpiece increases entanglement risk.

**SANDING/POLISHING.** To reduce entanglement risk, remove tool rest before sanding. Never completely wrap sandpaper around workpiece.



# Safety for Chucks

## WARNING

**ENTANGLEMENT.** Entanglement with a rotating chuck can lead to death, amputation, broken bones, or other serious injury. Never attempt to slow or stop the lathe chuck by hand, and always roll up long sleeves, tie back long hair, and remove any jewelry or loose apparel BEFORE operating.

**CHUCK SPEED RATING.** Excessive spindle speeds greatly increase the risk of the workpiece or chuck being thrown from the machine with deadly force. Never use spindle speeds faster than the safe limits of your chuck and workpiece.

**USING CORRECT EQUIPMENT.** Many workpieces can only be safely turned in a lathe if additional support equipment, such as a tailstock center, is used. If the operation is too hazardous to be completed with the lathe or existing equipment, the operator must have enough experience to know when to use a different machine or find a safer way.

**TRAINED OPERATORS ONLY.** Using a chuck incorrectly can result in workpieces coming loose at high speeds and striking the operator or bystanders with deadly force. To reduce the risk of this hazard, read and understand this document and seek additional training from an experienced chuck user before using a chuck.

**CHUCK CAPACITY.** Avoid exceeding the capacity of the chuck by clamping an oversized workpiece. If the workpiece is too large to safely clamp with the chuck, use a faceplate or a larger chuck if possible. Otherwise, the workpiece could be thrown from the lathe during operation, resulting in serious impact injury or death.

**CLAMPING FORCE.** Inadequate clamping force can lead to the workpiece being thrown from the chuck and striking the operator or bystanders. Maximum clamping force is achieved when the chuck is properly maintained and lubricated, all jaws are fully engaged with the workpiece, and the maximum chuck clamping diameter is not exceeded.

**PROPER MAINTENANCE.** All chucks must be properly maintained and lubricated to achieve maximum clamping force and withstand the rigors of centrifugal force. To reduce the risk of a thrown workpiece, follow all maintenance intervals and instructions in this document.

**DISCONNECT POWER.** Serious entanglement or impact injuries could occur if the lathe is started while you are adjusting, servicing, or installing the chuck. Always disconnect the lathe from power before performing these procedures.

**TOP JAW TYPES.** Mixing top jaw types will create an unbalanced and off-center load that could fly from the lathe and cause personal injury or property damage. Use all four top jaws of the same type when securing workpiece.

**POWER TOOLS.** Do not use power tools on cap screws or grip studs, which can easily damage the threads and cause the component to fail during operation. A workpiece or chuck component not properly secured can fly off during operation and cause serious personal injury.

**TENON/RECESS SIZE.** Size the tenon or recess properly and choose the correct jaw configuration so that there is the greatest possible amount of surface contact between jaws and workpiece. The greater the surface contact, the greater the gripping power!

**FLAT JAWS.** Flat jaws (or cole jaws) provide the least gripping power of the jaw types. Always use slow speeds when using flat jaws.

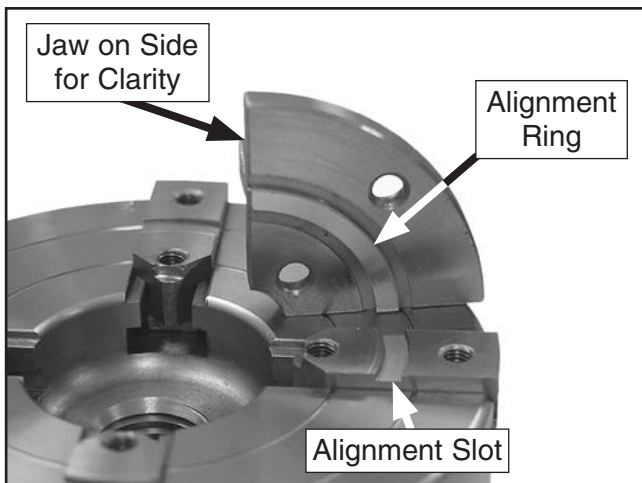
**SAFETY SET SCREW.** The safety set screw under bottom jaw #4 prevents the jaws from moving beyond safe engagement with the scroll gear. If this should happen, the jaws and workpiece could fly off the chuck during operation resulting in serious personal injury to operator or bystanders. Always make sure this set screw is properly installed and tightened when using the chuck.



## Mounting Jaws

1. Clean top and bottom jaws with mineral spirits. When dry, apply a thin coat of ISO 32 or equivalent oil to the mating surfaces.
2. Place top jaws on bottom jaws so alignment rings (see example below) fit into alignment slots and screw holes are aligned.

**Note:** Make sure stamped numbers of chuck jaw guide, bottom jaw, and top chuck correspond with each other to ensure jaws safely and evenly grip workpiece.

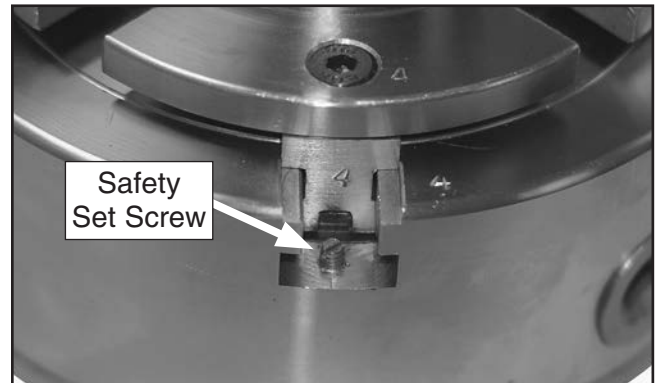


3. Apply a thin coat of ISO 32 or equivalent oil to cap screw threads to prevent screws from seizing under operational forces.
4. Thread the cap screws through the top jaws into the bottom jaws and finger tighten them, then back them off  $\frac{1}{4}$  turn.
5. Use chuck key to converge jaws to the center so they are evenly up against one another and even in height.
6. Fully tighten cap screws—do not overtighten.
7. Check jaw alignment. They should be evenly up against one another with no gaps and even in height.

—If this is not the case, repeat this procedure until they are.

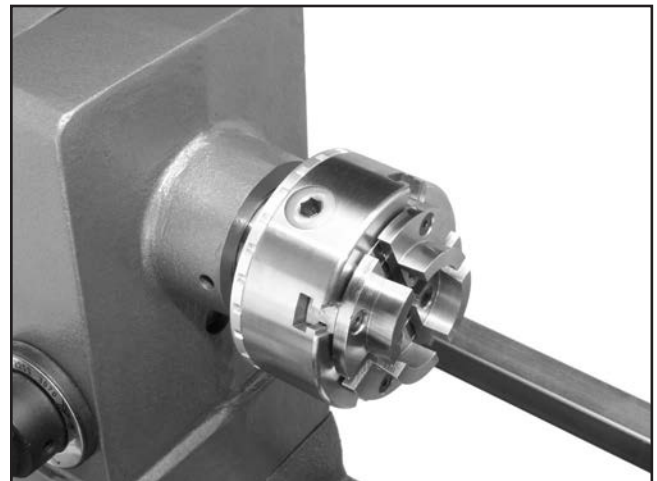
## **!**WARNING

The safety set screw under bottom jaw #4 (see example below) prevents the jaws from moving beyond safe engagement with the scroll gear. Unsecured jaws could fly off the chuck during operation resulting in serious personal injury to operator or bystanders. Always make sure this set screw is properly installed and tightened when using the chuck.



## Mounting Chuck

It is important that the chuck is properly mounted to the lathe to ensure safe and accurate turning (see the example below).



## To mount the chuck onto the lathe:

1. DISCONNECT LATHE FROM POWER!
2. Thoroughly clean threads of spindle and chuck bore with mineral spirits and a stiff brush.
3. Properly mount top jaws onto bottom jaws.
4. To prevent chuck binding to spindle under operational forces, apply a thin coat of ISO 32 or equivalent oil to spindle threads.
5. Thread chuck onto spindle and hand tighten. It should screw on without binding or excessive play.
6. Lock spindle in place.
7. Back chuck off slightly, then quickly rotate chuck onto spindle. This will firmly seat the chuck.

## Indexing

The chuck back plate has indents and numbers for performing indexing operations. Indexing allows the circumference of the workpiece to be divided into equal segments.

An indexing arm (not included) is required to take advantage of this feature. Research books and the internet to better understand the process, what is required, and how to perform indexing operations.

### **NOTICE**

**When mounting workpiece on jaws, do not contact workpiece with the lower flat of jaws. This provides better gripping power and avoids any inconsistencies between surfaces that would interfere with true rotation.**

## Chuck Types

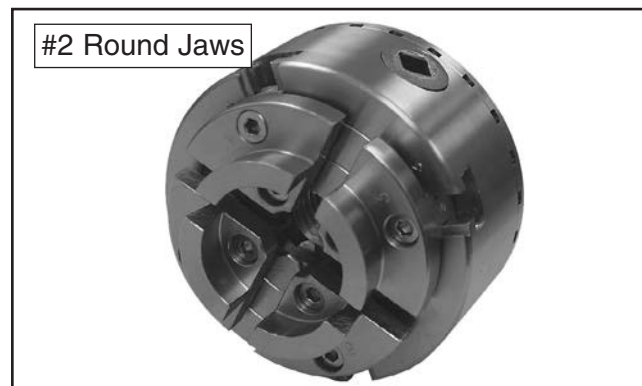
The best jaw type to use is the one that will provide the greatest contact between the jaw and the workpiece—this provides the best gripping power!

### **Round Jaws**

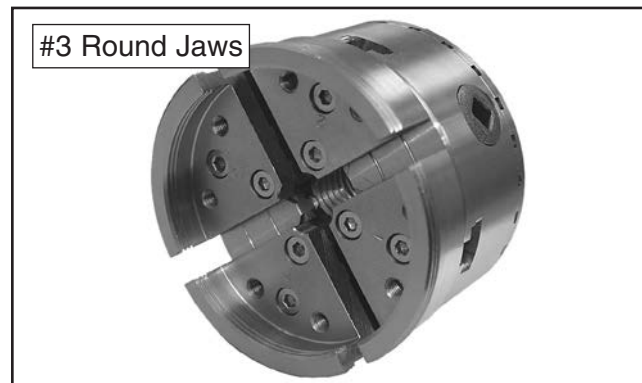
Round jaws (or dovetail jaws) are typically either closed around a tenon (or foot) turned on the bottom of a bowl, or they are expanded into a recess cut into the workpiece. The tenon is later removed with the workpiece mounted on the flat jaws.

A dowel workpiece can also be fed through the center of the chuck and spindle bore, and gripped with center surfaces of the jaw flats. As each piece is turned and cut off, the dowel can be advanced for the next piece.

The #2 round jaws have a slight dovetail profile. If a matching profile is cut into the recess, the jaws can expand with much greater gripping power.



The #3 round jaws can hold much larger workpieces than the #2 round jaws and have ridges that press into the wood for a better grip.

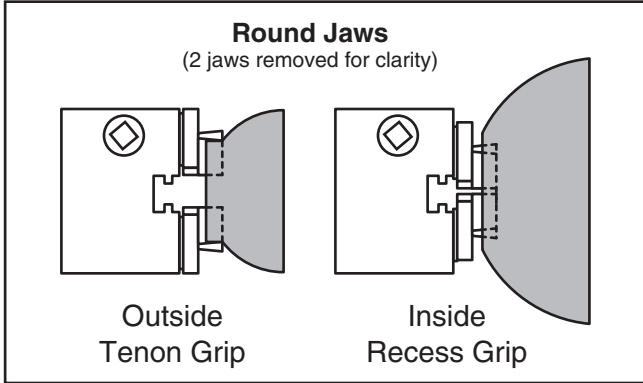


**#2 Round Jaws:**

Outside Grip Range ..... 1 1/4"–2 1/2"  
Inside Grip Range ..... 1 3/4"–3 1/8"

**#3 Round Jaws:**

Outside Grip Range ..... 3"–4 1/4"  
Inside Grip Range ..... 3 1/2"–4 7/8"



**Pin Jaws**

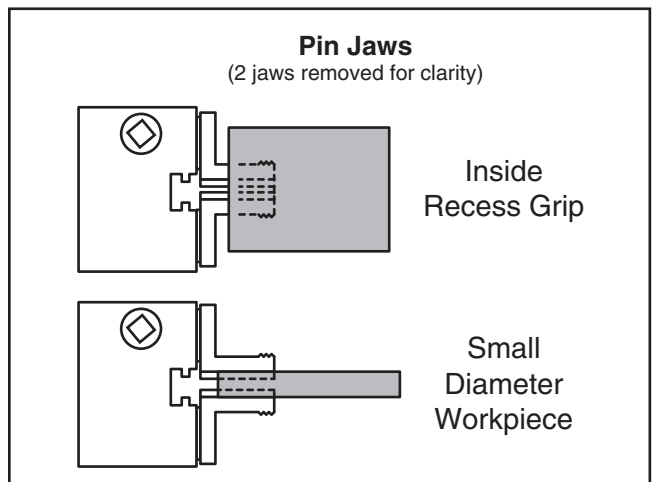
Pin jaws are typically used to expand into a deep recess cut into a bowl-shaped workpiece for initial roughing of the outside and tenon (or foot).

When used to grip the inside of a recess, the advantage to pin jaws over step or round jaws is that they offer a lot of surface area for gripping. They also have ridges on the outside for greater gripping power. The disadvantage is that the recess must be fairly deep. However, this is usually cut into the waste portion of the workpiece and removed later.

The smooth center surface of the pin jaws can also grip externally around a small tenon on objects such as Christmas ornaments, wooden tops, lace bobbins, or other delicate work without marring the workpiece.



Outside Grip Range ..... 3/8"–1 3/4"  
Inside Grip Range ..... 1"–2 3/8"

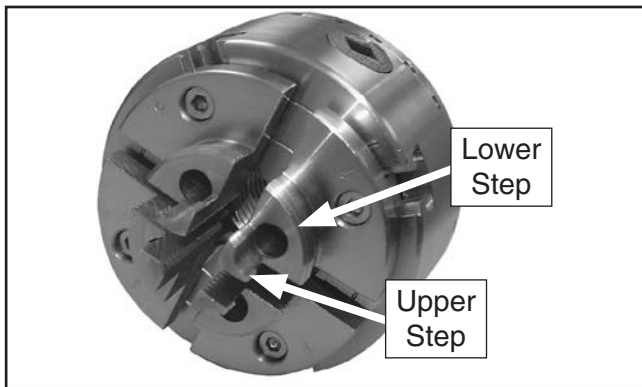


**Step Jaws**

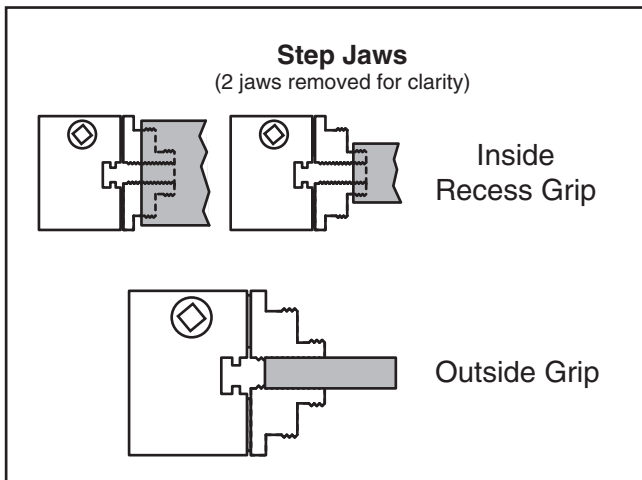
The step jaws have two outside profiles of different circumferences designed to expand into the recess cut into the workpiece. The surfaces of the jaws have ridges that push into the wood which increases the gripping power.

The center surfaces of the step jaws are ridged and can grip a dowel-type workpiece from the outside that is fed through the chuck and spindle bore.

Basically, step jaws combine the capabilities of the round jaws and the pin jaws, but are much more versatile than either of those jaws alone.



- Outside Grip Range .....  $\frac{3}{32}$ "– $1\frac{3}{8}$ "
- Inside Grip Range:
  - Upper Step..... $\frac{3}{4}$ "– $2$ "
  - Lower Step..... $1\frac{1}{2}$ "– $2\frac{7}{8}$ "

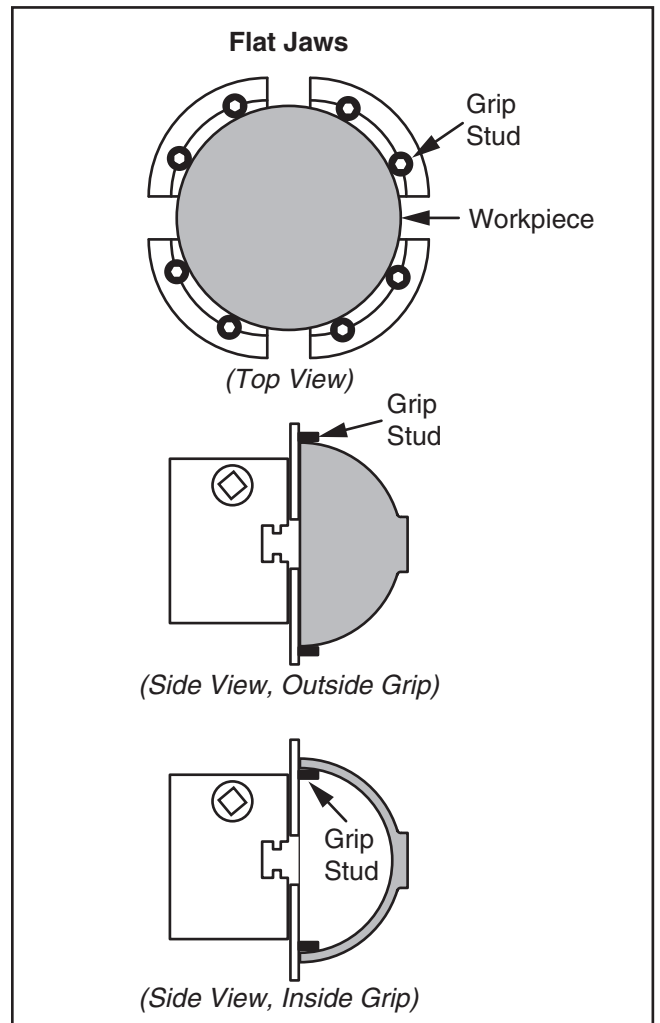


**Flat Jaws (or Cole Jaws)**

Used with included grip studs, flat jaws are primarily used to finish the bottom of a bowl-type workpiece (see examples below). The included studs are 13 and 18mm in height and are rubber coated to prevent marring. Use the stud set and configuration that has the most surface contact with the workpiece.

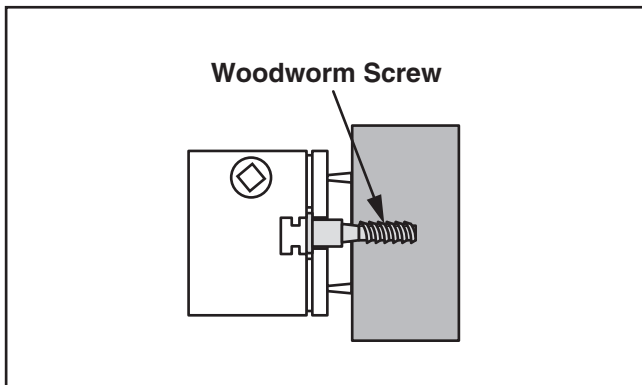


- Flat Jaws Maximum Outside Diameter ..... $5\frac{1}{8}$ "
- Flat Jaws Minimum Inside Diameter ..... $2\frac{7}{8}$ "



### Woodworm Screw

The woodworm screw is typically used with the #2 round jaw set for holding small items. Refer to the illustration below for closing the round jaws around the base of the screw.



The woodworm screw has a very coarse 45° thread that provides a positive grip in the wood.

Using the woodworm screw is an easy way to mount a blank workpiece, but does not provide the gripping power that the other jaws do. For heavy, unbalanced workpieces or ones that require more gripping power, use one of the jaw types or screw the workpiece to a faceplate.

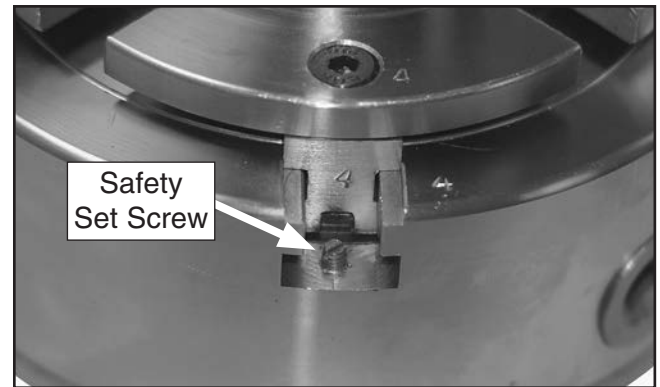
When using the woodworm screw, make sure the workpiece is as round as possible, then drill a  $\frac{5}{16}$ " x  $1\frac{1}{4}$ " hole in the waste portion of the workpiece. Thread the workpiece onto the screw until it is seated firmly against the chuck.

### Bottom Jaw Removal & Installation

If it is necessary to remove the bottom jaws for maintenance or replacement, follow these steps to ensure the jaws will safely and evenly grip workpieces.

#### To remove the bottom jaws:

1. Remove top jaws.
2. Using chuck key, bring bottom jaws together in center of chuck. This will provide access to safety set screw.
3. Remove safety set screw under bottom jaw #4 (see example below) and set it aside.



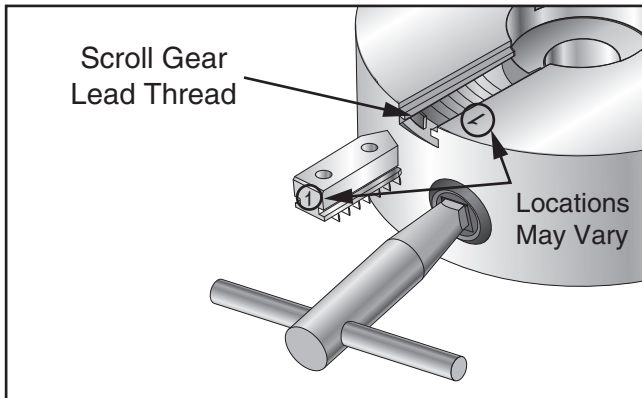
4. Insert chuck key and rotate it counterclockwise to move the bottom jaws away from center of chuck.
5. Remove jaws one by one as they disengage from the scroll gear.





## To re-install the bottom jaws:

1. Clean bottom jaws and jaw guides with mineral spirits. When dry, apply a thin coat of ISO 32 or equivalent oil to the mating surfaces.
2. Make sure safety set screw is properly installed in jaw guide #4.
3. Rotate chuck key clockwise until you see the tip of scroll gear lead thread just begin to enter jaw guide #1 (see below).



4. Insert bottom jaw #1 into jaw guide #1, and hold jaw against scroll gear.
5. Rotate chuck key clockwise one turn to engage tip of scroll gear lead thread with bottom jaw. Pull the jaw; it should be locked into jaw guide.
6. Install the remaining jaws in numerical order, in the same manner. If installed correctly, the jaws will converge evenly at center of chuck.

—If jaws do not converge evenly, remove them. Make sure stamped numbers of bottom jaws and jaw guides match, then re-install jaws and make sure each one engages with scroll gear lead thread during its first rotation.

## Maintenance

Clean and lubricate the chuck on a regular basis to ensure the jaws move in and out evenly, can be properly secured to the chuck, and provide a solid grip.

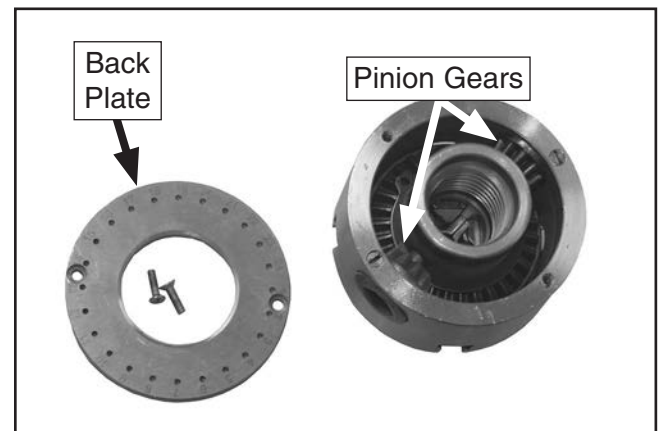
### **Cleaning**

Brush chips and dust off the chuck and jaws. Do not use pressurized air that can drive the debris farther into the chuck.

If resin builds up on the sliding surfaces making the chuck difficult to operate, soak the chuck and jaws for 30 minutes in mineral spirits with 10% ISO 32 or equivalent oil added. Drain thoroughly and allow to dry.

### **Lubrication**

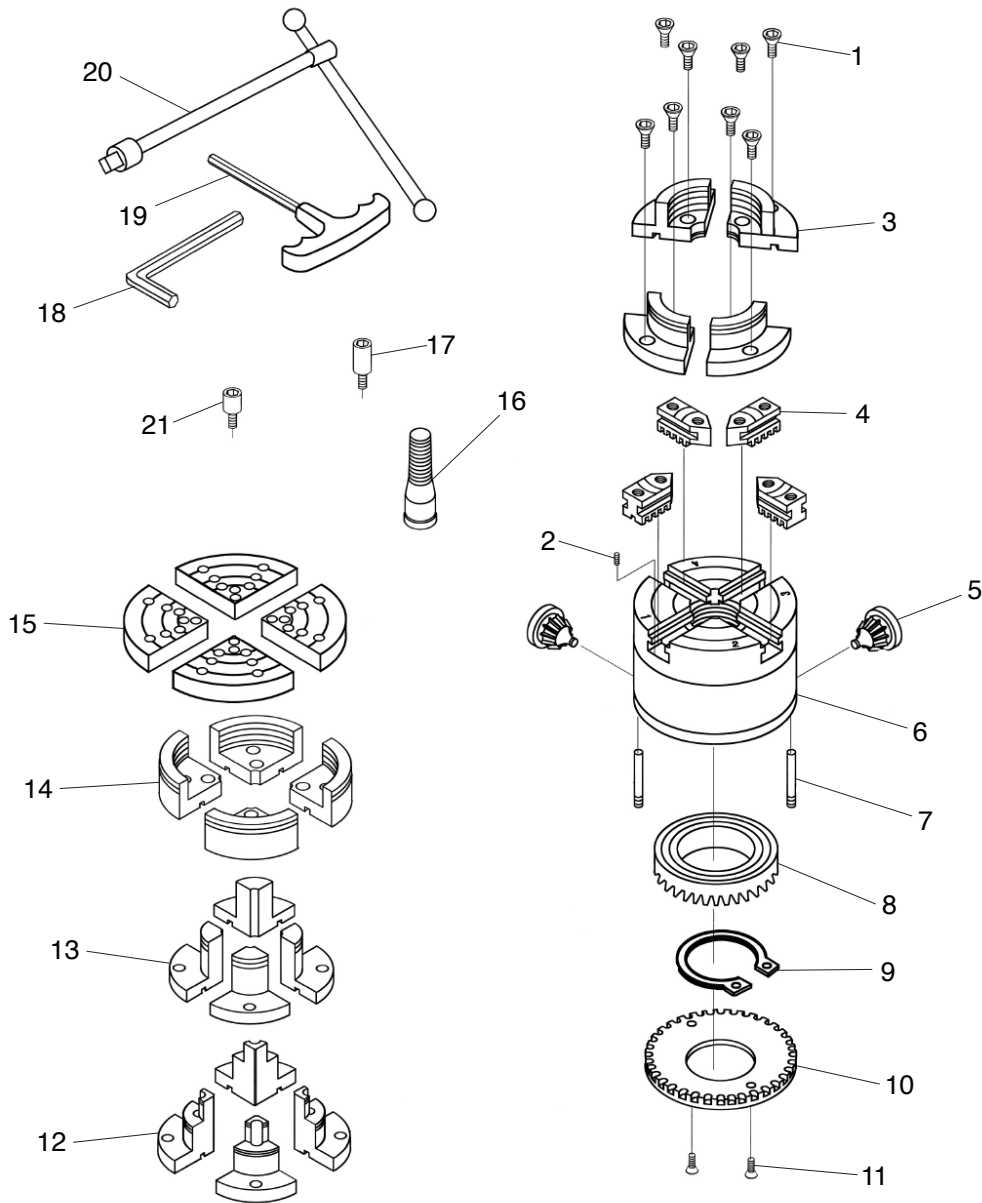
1. Apply a thin coat of ISO 32 or equivalent oil to all outside surfaces of bottom and top jaws, and chuck body.
2. Turn the chuck upside down and remove the two Phillips head screws that secure back plate, then remove back plate (see example below).



3. Add several drops of ISO 32 or equivalent oil to pinion gears, then use chuck key to rotate scroll gear back and forth to evenly distribute the lubricant.
4. Replace the back plate before using chuck in operations.



# Parts



REF	PART #	DESCRIPTION
1	PT10809001	FLAT HD CAP SCR M5-.8 X 12
2	PT10809002	SET SCREW M4-.7 X 6 CONE-PT
3	PT10809003	ROUND JAW #2 4-PC SET
4	PT10809004	BOTTOM JAW 4-PC SET
5	PT10809005	PINION GEAR
6	PT10809006	CHUCK BODY
7	PT10809007	THREADED LOCK PIN
8	PT10809008	SCROLL GEAR
9	PT10809009	EXT RETAINING RING 48MM
10	PT10809010	INDEXING BACK PLATE
11	PT10809011	FLAT HD SCR M4-.7 X 8

REF	PART #	DESCRIPTION
12	PT10809012	STEP JAW #1 4-PC SET
13	PT10809013	PIN JAW 4-PC SET
14	PT10809014	ROUND JAW #3 4-PC SET
15	PT10809015	FLAT JAW 4-PC SET
16	PT10809016	WOODWORM SCREW
17	PT10809017	GRIP STUD M6-1 X 6, 18L 8-PC SET
18	PT10809018	HEX WRENCH 4MM
19	PT10809019	T-HANDLE HEX WRENCH 4MM
20	PT10809020	LATHE CHUCK KEY 8MM CHROME
21	PT10809021	GRIP STUD M6-1 X 6, 13L 8-PC SET

**Please Note:** We do our best to stock replacement parts whenever possible, but we cannot guarantee that all parts shown here are available for purchase. Call (800) 523-4777 or visit our online parts store at [www.grizzly.com](http://www.grizzly.com) to check for availability.

