



Instruction Sheet

Model SB1313

High Precision 6" Lathe Chuck



⚠ WARNING

Chucks are heavy! Get assistance when installing or removing the chuck from the lathe. Wear heavy duty leather boots for foot and toe protection, and keep hands and fingers away from all pinch points. Ignoring this warning can lead to a severe crushing injury or finger amputation!



Specifications

- OD Clamping Range ... 0.32"-6.30" (8-160mm)
- ID Clamping Range .. 2.17"-5.90" (55-150mm)
- Outer Diameter 6.57" (167mm)
- Maximum Chuck Key Torque 58 ft/lbs*
- Maximum Jaw Gripping Force 4721 lbs*
- Maximum Speed 2000 RPM
- Two-Piece Hardened Steel Jaws Yes
- Plain Back Mounting Yes
- Jaw Mounting Cap Screw Torque 29 ft/lbs
- Grease Fitting Lubricated Yes
- Cast-Iron Construction Yes
- Chuck Weight 20 lbs
- Origin Taiwan

* Maximum handle torque and gripping force is given at full jaw and scroll gear engagement. If jaw and scroll gear are partially engaged, clamping force and gripping force is reduced.

If you need help with your new item, contact us at: (360) 734-1540 • FAX: (360) 676-1075

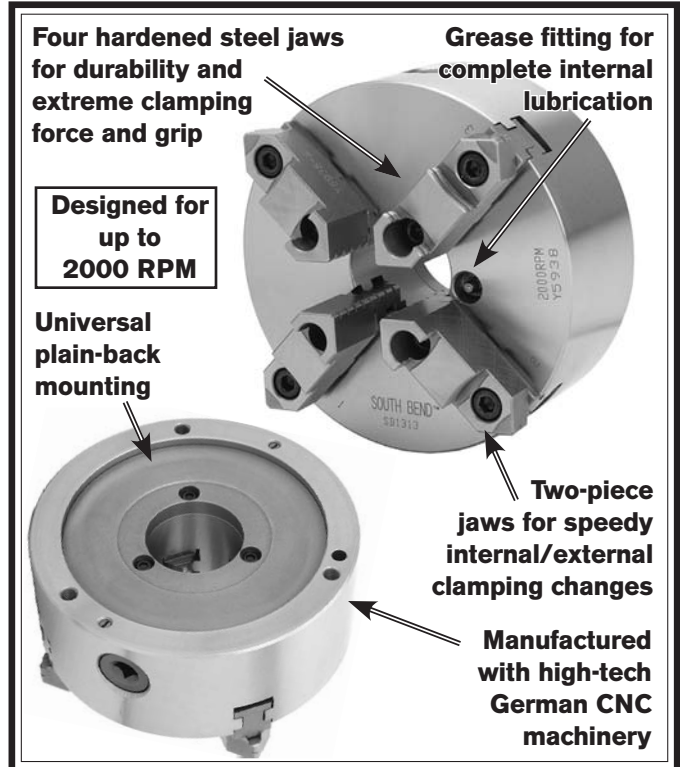


Figure 1. Features.

Installation

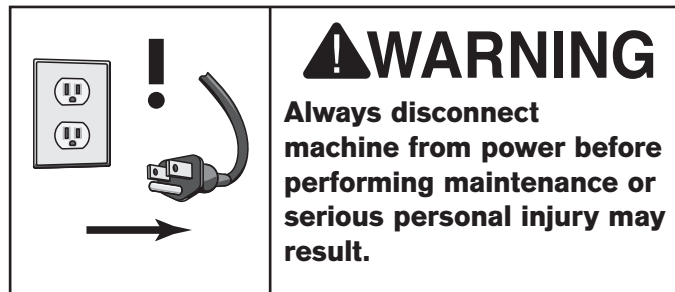
1. DISCONNECT LATHE FROM POWER!
2. Mount the back plate on the spindle.
3. Accurately measure the inside of the back relief bore on the chuck. This dimension is critical and should be ± 0.001 ".
4. Face and true the diameter of the back plate. Make passes across the face until the entire surface has been cut.
5. Turn a shoulder into the face $\frac{1}{8}$ " deep and 0.001" to 0.002" larger than the back relief bore diameter. Remember that this is a press fit. Chamfer the corner a small amount to prevent any burrs when installing.

6. While the back plate is still installed in the lathe, scribe a 147mm diameter centerline in the face of the back plate. This centerline is for the chuck mounting bolt holes.
7. Along the circumference of the centerline just scribed, mark and center punch the three mounting bolt hole locations 120° apart.
8. Remove the back plate from the lathe and drill three 7/16" diameter mounting holes completely through the back plate.
9. Clean and stone all mating surfaces until they are perfectly clean and no burrs exist.
10. Place the chuck in an oven, and then set the oven to the warm setting. When the oven reaches approximately 100° F, turn the oven off and let the chuck sit in the oven for 30 minutes.
11. Place the back plate into a freezer for 30 minutes.
12. Put on insulated leather gloves and place the chuck on the back plate. Line up the mounting holes and install the three supplied hex bolts finger tight.
13. Install the back plate and chuck onto the lathe.
14. Working in an alternating pattern, tighten the M10-1.5 chuck mounting hex bolts until you reach a final torque of 30 ft/lbs. Alternating the tightening process avoids chuck warpage.

Operation and Safety

- **Chuck Key Safety:** A chuck key left in the chuck can become a dangerous projectile when the spindle is started. Always remove the chuck key after using it. Develop a habit of not taking your hand off of a chuck key unless it is away from the machine.
- **Disconnect Power:** Disconnect the lathe from power before installing and removing the chuck or doing any maintenance or adjustments. Accidental lathe startup can cause severe injury or death.
- **Secure Clamping:** A thrown workpiece may cause severe injury or even death. When swapping the chuck jaw positions, use a torque wrench to re-torque the M8-1.25 jaw mounting cap screws to 29 ft/lbs. When clamping a workpiece, maximum gripping force is attained at full jaw and scroll gear engagement. If the jaw and scroll gear are partially engaged, clamping force is reduced.
- **Chuck Speed Rating:** Exceeding the maximum rated speed indicated on the chuck, or using excessive spindle speeds with an unbalanced workpiece, can cause the workpiece to be thrown from the chuck causing a severe impact injury or even death. Always use the appropriate spindle speed for the job.
- **Large Chucks:** Large chucks are very heavy and difficult to grasp, which can lead to crushed fingers or hands if mishandled. Get assistance when installing or removing large chucks to reduce this risk. Protect your hands and the precision ground ways by using a chuck cradle or piece of plywood over the ways of the lathe when servicing chucks.
- **Safe Clearances:** Often chuck jaws will protrude past the diameter of the chuck and can contact a coolant nozzle, tooling, tool post, or nearby components. Before starting the spindle, make sure the workpiece and the chuck jaws have adequate clearance by rotating the spindle through its entire range of motion by hand.

Care & Maintenance



For optimum performance from your chuck, follow the maintenance schedule below, and never hammer on the chuck, jaws, or a workpiece clamped in the chuck. Never subject the chuck to abrasives, flame, or water.

Daily:

- Check/correct loose mounting bolts.
- Use a vacuum, rag, or brush to clean the chuck after use. Never use air pressure to clean chips away from a chuck.
- Wipe the chuck down with a thin coat of way oil to prevent surface rust.
- Grease the chuck fitting with one to two pumps of NLGI #2 grease.

If the chuck ever becomes stiff to operate, it may have been contaminated with metal chips or abrasives from neglect or poor service practices. The chuck must be disassembled, cleaned, and re-lubricated.

To disassemble the chuck for a full cleaning and lubrication service:

1. DISCONNECT LATHE FROM POWER!
2. Mark the chuck and the mounting plate where they mate to ensure that when reassembled both halves line up. Next, unbolt the chuck and separate both halves.
3. Insert and rotate the chuck key counterclockwise until the scroll-gear has released all three jaws.
4. Using a 4mm and 6mm hex wrench, a #1 standard screwdriver, and a ratchet with a 7mm socket, start at #1 and disassemble the chuck in the sequence shown in **Figure 2**.

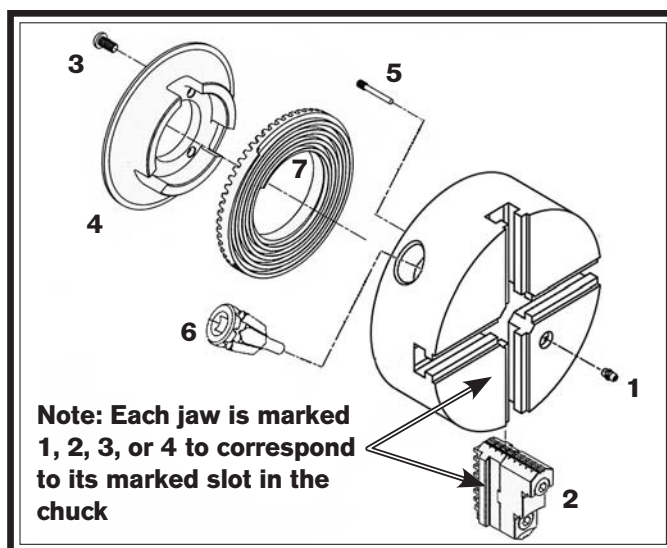


Figure 2. Chuck sequence of disassembly.

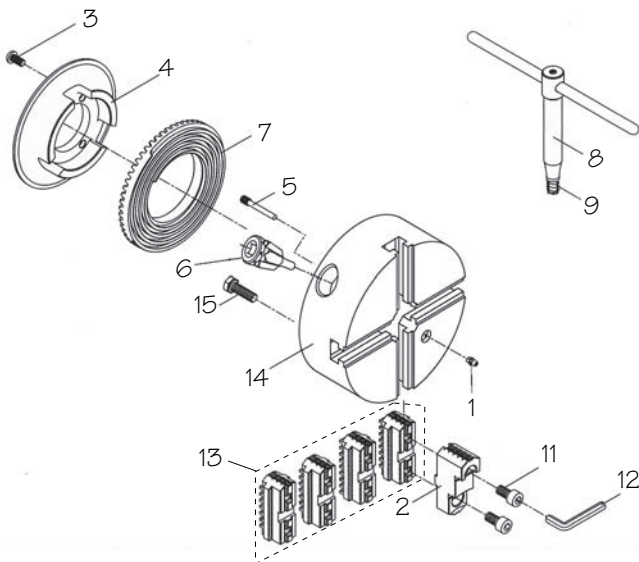
5. Using mineral spirits, clean and dry all components. Inspect all bores, teeth, pins, and mating surfaces for wear, burrs, galling, rust, or cracks.
6. Without changing the dimension of any part, use a wire brush, emery cloth, or dressing stones, to remove any rust, burrs, or high spots caused by galling.
7. Coat all parts with any automotive NLGI #2 grease, and carefully reassemble the chuck in the reverse order shown in **Figure 2**.
8. Rotate the chuck key clockwise until you see the tip of the scroll-gear lead thread just begin to enter jaw guide #1.
9. Insert jaw #1 into jaw guide #1, and hold the jaw against the scroll-gear.
10. Rotate the chuck key clockwise one turn to engage the tip of the scroll-gear lead thread into the jaw. Pull the jaw; it should be locked into the jaw guide.
11. Install the other jaws in the same manner, and install a new grease fitting if the ball or nipple leak grease.
12. Line up the timing mark on the chuck and the mounting plate, and fasten both halves by tightening and torquing the fasteners as outlined in **Step 13 in Installation**.

Troubleshooting

If you need replacement parts, or if you are unsure how to do any of the solutions given here, feel free to call us at (360) 734-1540.

Symptom	Possible Cause	Possible Solution
The chuck has hard spots or binds completely.	<ol style="list-style-type: none"> 1. Jaw is in wrong position. 2. Lack of lubrication, rust, burrs, or metal shavings inside of chuck. 3. Broken tooth on the pinion or the scroll gear. 	<ol style="list-style-type: none"> 1. Reinstall jaws in correct order and position on scroll gear. 2. Disassemble, de-burr, clean, and lubricate chuck. 3. Disassemble, replace broken parts if possible, and reassemble chuck.
The workpiece slips in the jaws.	<ol style="list-style-type: none"> 1. Incorrect jaw or workpiece clamping position. 2. Insufficient pinion and scroll gear torque. 3. Cutting overload. 4. Chuck is binding before full clamping is achieved. 	<ol style="list-style-type: none"> 1. Reposition jaws and workpiece for maximum scroll gear and jaw engagement is achieved. 2. Tighten chuck key to 65 ft/lbs. 3. Reduce cutting depth or feed rate. 4. Disassemble and service/rebuild chuck.
Clamping accuracy is poor.	<ol style="list-style-type: none"> 1. Workpiece is improperly clamped or jaw is loose or incorrectly seated. 2. Chuck loose, mounting is off center, or it is improperly seated. 	<ol style="list-style-type: none"> 1. Remove jaws, clean, de-burr, and re-install with jaw mounting caps crews torqued to 29 ft/lbs. 2. Remove chuck, clean and de-burr mounting, and re-install, or machine a new mounting plate.

Parts Diagram



Parts List

REF	PART #	DESCRIPTION
1	PSB1313001	GREASE FITTING
2	PSB1313002	TOP JAW
3	PCAP115M	BUTTON HD CAP SCR M6-1 X 16
4	PSB1313004	BACK COVER
5	PSB1313005	LOCK PIN
6	PSB1313006	PINION
7	PSB1313007	SCROLL GEAR
8	PSB1313008	CHUCK KEY W/SPRING
9	PSB1313009	COMPRESSION SPRING
11	PCAP172M	CAP SCREW M8-1.25 X 20 BLK C12.9
12	PAW08M	HEX WRENCH 8MM
13	PSB1313013	BOTTOM JAW SET OF 4
14	PSB1313014	CHUCK BODY
15	PB174M	HEX BOLT M10-1.5 X 35 BLK C12.9

Please Note: We included this breakdown for service purposes only. Since many of the parts shown are machined to each individual chuck, they are not available as replacement items.

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