MODEL SB1214
12" 4-JAW INDEPENDENT CHUCK
Instruction Sheet

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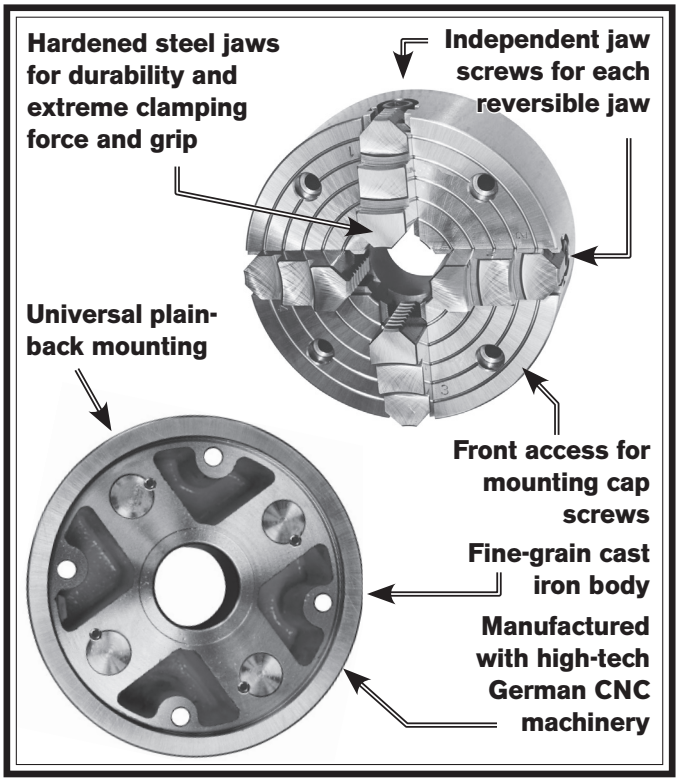
⚠WARNING

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..... 0.68"–10.04" (17.5–255mm)
- ID Clamping..... 3.74"–10.82" (95–275mm)
- Chuck Bore Diameter .....2.56" (65mm)
- Chuck Outer Diameter .....11.81" (300mm)
- Chuck Mounting Cap Screw Torque 104 ft/lbs
- Maximum Speed .....2500 RPM*
- Mounting Type ..... Universal Plain Back
- Construction.....Fine-Grain Cast-Iron
- Chuck Weight..... 75 lbs
- Chuck Shipping Weight..... 79 lbs
- Country of Origin ..... Taiwan

* The maximum speed listed above is ONLY possible with the chuck jaws and the workpiece in complete rotational symmetry. The workpiece weight must be within the limits of the lathe, and the workpiece mass must be of equal density throughout to prevent centrifugal imbalance or radial runout—even if a tailstock or other support is used for additional support.

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 the entire surface of the back plate.

5. Turn a shoulder into the back plate face that is ⅛" deep and 0.001" to 0.002" larger than the relief bore that is on the mounting side of the chuck. (Remember, a press fit must exist between the two.) Slightly chamfer the edges to prevent any burrs when installing.

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6. Set the chuck on the back plate, and align the shoulder with the relief bore. Use a transfer punch to mark the mounting holes in the back plate. Or you can use a drill bit of the same diameter as the mounting holes in the chuck. Lightly tap on the bit, rotate it 90°, and tap it again to form an X.

7. Remove the back plate from the lathe, drill the chuck mounting cap screw holes though the back plate, and then tap the holes.

8. Clean and stone all mating surfaces until they are perfectly clean and free of burrs.

9. Place the back plate into a freezer for 30 minutes; place the chuck in an oven at 100°F for the same amount of time.

10. Put on insulated leather gloves and fasten the chuck to the back plate with the mounting cap screws only finger tight, then install the assembly onto the lathe spindle.

11. Tighten the chuck mounting cap screws in a star pattern in three progressively tighter sequences until the required torque value is reached. Alternating the tightening process insures the chuck will be pressed on straight. Repeat this step until the chuck seats with back plate. If the chuck is loose, or is crooked on the shoulder, it will be necessary to recut the back plate face and shoulder again.

12. When installation is complete, lightly stamp alignment marks in the chuck and back plate to ensure that the chuck will be re-installed in the same position if ever removed.

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, keep in mind that maximum gripping force is attained at full jaw and jaw screw engagement. If only one is partially engaged, overall clamping force is reduced.

- **Speed Rates:** Operating the lathe where maximum chuck speed is exceeded, or at too high of a speed for an unbalanced workpiece, can cause the workpiece to be thrown from the chuck. Always use the appropriate feed and speed rates. A thrown workpiece may cause severe injury or even death.

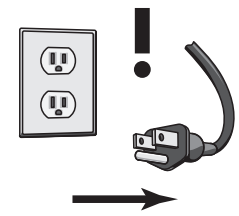
- **Large Chucks:** Large chucks are very heavy and difficult to grasp, which can lead to crushed fingers or hands if mishandled. Get assistance when installing or removing large chucks to reduce this risk. Protect your hands and the precision ground ways by using a chuck cradle or piece of plywood over 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 saddle. Before starting the spindle, make sure the workpiece and the chuck jaws have adequate clearance by rotating it through its entire range of motion by hand.

- **Stopping Lathe By Hand:** Stopping the spindle by putting your hand on the workpiece or chuck creates an extreme risk of entanglement, impact, crushing, friction, or cutting hazards. Never attempt to slow or stop the lathe chuck by using your hand. Allow the spindle to come to a stop on its own or use the brake (if equipped).

- **Long Stock Safety:** Long stock can whip violently if not properly supported, causing serious impact injury and damage to the lathe. Reduce this risk by supporting any stock that extends from the chuck/headstock more than three times its own diameter. Always turn long stock at slow speeds.

Care & Maintenance



⚠WARNING

Always disconnect machine from power before performing maintenance or serious personal injury may result.

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

Daily:

- Check/correct loose mounting bolts.
- Keep the chuck clean and oiled.
- Use a vacuum, rag, or brush to clean the chuck after use. Never use air pressure to clean chips away from a chuck.
- Avoid leaving the chuck clamped on a workpiece, unload the chuck jaws daily.
- Make sure the chuck key is removed from the chuck when not in use.

If the chuck ever becomes stiff to operate, it may have been contaminated with metal chips or abrasives from incorrect or limited maintenance intervals. If this is the case, 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. Unbolt and remove the chuck. Unless previously done, stamp alignment marks in the chuck and the mounting plate to ensure that they line up when reassembled.

3. Disassemble the chuck in the sequence shown in **Figure 1**.

a. Clamp the chuck face side up on the workbench.

b. Back the jaws out of the chuck.

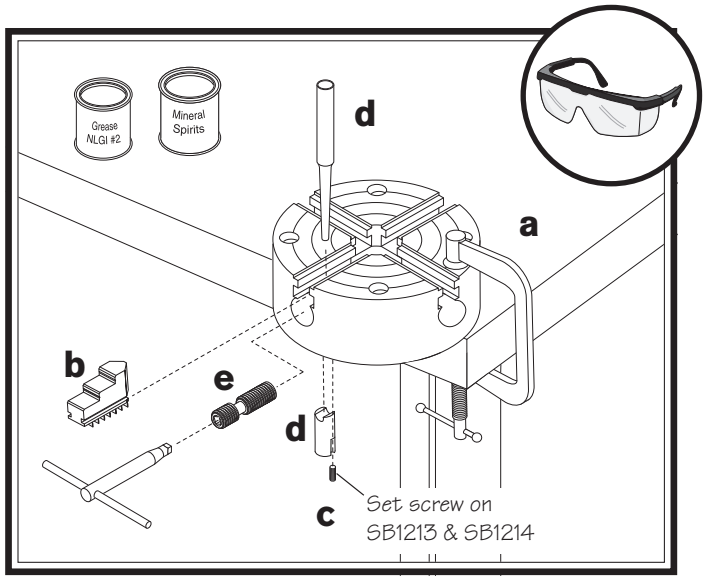


Figure 1. Chuck sequence of disassembly.

c. Remove the four set screws.

d. Put on safety glasses, and use a hammer and drift punch to tap out each jaw screw retaining pin.

e. Slide the jaw screws out of their bore.

4. Using mineral spirits, clean and dry all components. Inspect all bores, teeth, pins, and mating surfaces for wear, burrs, galling, rust, or cracks.

5. Without changing the dimension of any part, use a wire brush, emery cloth, or dressing stones to remove all rust, burrs, or any high spots caused by galling.

6. Coat all parts with any automotive NLGI #2 grease, and carefully reassemble the chuck in the reverse order shown in **Figure 1**.

7. Rotate the chuck key clockwise until the lead thread of each jaw screw is seen just entering the jaw guide, then insert each numbered jaw into its numbered slot.

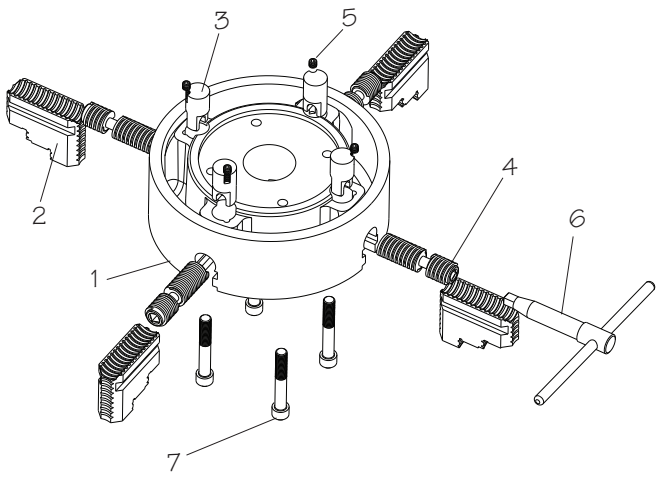
8. One at a time, hold each jaw against its jaw screw, and rotate the chuck key clockwise to engage the jaw screw with the jaw, and fully thread the jaw into the chuck.

9. Starting at **Step 8** in **Chuck Installation** on **Page 2**, align and re-install the chuck as outlined.

Troubleshooting

Symptom	Possible Cause	Possible Solution
The chuck has hard spots or binds completely.	**1.** Jaw is in a poor position for clamping. **2.** Lack of lubrication, rust, burr, or metal shavings inside of chuck. **3.** Broken tooth on the jaw or the jaw screw.	**1.** Re-install jaws for maximum engagement with jaw slot and jaw screw. **2.** Disassemble, de-burr, clean, and lubricate chuck. **3.** Disassemble and rebuild chuck.
The workpiece slips in the jaws.	**1.** Incorrect jaw or workpiece clamping position. **2.** Chuck is binding before full clamping force is achieved, or a jaw or jaw screw is binding. **3.** Cutting overload.	**1.** Re-install jaws for maximum engagement with jaw slot and jaw screw. **2.** Chuck is loaded up with contaminants causing binding. Disassemble and service chuck. Loosen and retighten the chuck key several times to work lubricant in. **3.** Reduce cutting depth or feed rate.
Clamping accuracy is poor.	**1.** Workpiece improperly clamped or workpiece is misaligned. **2.** Chuck loose, mounting is off center, or it is improperly seated.	**1.** Remove jaws, clean, de-burr, and re-install, verify accuracy and recalibrate test/dial indicator. **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	PSB1214001	CHUCK BODY
2	PSB1214002	UNIVERSAL JAW
3	PSB1214003	JAW SCREW RETAINING PIN
4	PSB1214004	JAW SCREW
5	PSS02	SET SCREW 5/16-18 X 3/8
6	PSB1214005	CHUCK KEY
7	PCAP180M	CAP SCREW M12-1.75 X 85 BLK C12.9

If you need help with your new chuck, contact us at:
PHONE: (360) 734-1540
FAX: (360) 676-1075 (International)
FAX: (360) 734-1639 (USA Only)
EMAIL: sales@southbendlathe.com

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