

# Disassembling a South Bend Lathe for Moving

(See other guides for information on examining and buying a lathe.)

This example is for a table top lathe with a horizontal drive. These are typically mounted on a work bench or cabinet not provided by the manufacturer. For a lathe with an underneath motor drive and a pedestal base and legs, or a cabinet base, the procedure is similar. You may or may not choose to remove the motor from the base of these lathes depending on weight and difficulty.

**It's Easy!** Disassembling a SB Lathe for moving is way easier than you can imagine.. If you will simply learn a few part names and follow this simple, step by step guide, it will go smooth as butter. The important thing is that it is as easy and quick to do, as trying to move the lathe completely assembled, or worse yet, with it attached to a table or base. These lathes are heavy, and when attached to a work table they are very top heavy. Trying to load them into a trailer or truck assembled or on a table can result in major damage to the lathe (Ask me how I know) or injury to you and your helpers. So here's what you need to do.

## Preparation

### Tools:

- Large flat bladed screwdriver
- Open ended wrenches (7/16 and basically a whole set to make sure you have what you need – There may not even be tailstock and other wrenches with the lathe)
- Crescent wrenches (a couple of sizes to use with ratchet for nut and bolt combinations)
- Hex wrench set
- 3/8" Ratchet set with a few assorted extension bars
- Tarp (In case it rains)
- Wear old clothes (You will get greasy and dirty)
- Bring some degreasing hand cleaner and rags and water to clean up afterward.
- Optional: Soft hammer (rubber/plastic)
- **Print out this guide in color and take it with you!**

## Some Important Notes:

- When removing these heavy items from the lathe, chock up under them with wood and support them so they won't fall and break, or damage the lathe or you. First loosen all bolts on an item to be removed and then remove completely, first the lower ones, and then the upper ones.
- Replace removed bolts and gears and brackets to their original locations right away before you forget where they go. Be careful not to mix up longer and shorter bolts and their locations.
- Take photos before, and as you disassemble the lathe to remember what goes where. This is especially useful on the gear end.
- Get help lifting heavy items. It is possible to disassemble a lathe alone (At least up to a Heavy 10 in my experience), but it is so much easier with a helper. If you can't get help, lift with your legs.
- If you have to move the lathe parts any distance to load it in your truck, van or trailer, a handcart is a great help, especially for the heavy and ungainly parts like the bed, base and table. Strap the bed or legs or bench or cabinet to the handcart so you don't drop them.
- Think about bringing a tarp in case of rain, cardboard boxes for parts and cardboard to pad subassemblies. Ratcheting tie downs and rope will secure the table or base parts to a trailer.

**Hint:** This whole process works much better with 2 people, one to hold or steady the part or assembly, while the other loosens and then removes the bolts. It can be done alone with careful thinking ahead about each step, and how to secure the part while removing it. The headstock and bed will be heavy and ungainly to move so plan your moves. Protect yourself and the lathe. Take your time.

## Parts of the Lathe (In the order of disassembly) With removal instructions

There are only 9 main parts or sub-assemblies of the lathe you need to know, to be able to take it apart.

I will describe them in the order in which they are most easily removed.

These are the **Motor**, **Countershaft**, **Tailstock**, **Carriage (Saddle/Apron with Leadscrew)**, **Headstock** and **Bed and Base**.

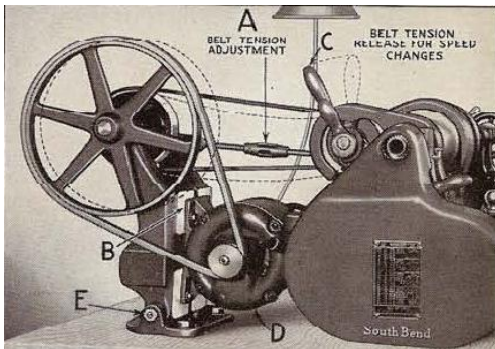
Take a look at the drawing below and identify these main assemblies and parts.

When all these are removed from the lathe, it is possible for one person to move each of them, making it possible to move the lathe safely both for you and the lathe itself. **Note: First, Unplug the Lathe!**

## Motor

The electric motor is attached to the big bracket that the countershaft is a part of. In horizontal drives this assembly is mounted on the workbench behind the lathe. See drawing below. In underneath drives it is in the base or cabinet. First detach the forward reverse or drum switch from the headstock or other mounting point. Leave the electrical cables and wires attached to the motor but move them out of the way. Then simply loosen and then remove the 4 bolts that hold the motor on the bracket and slip the V-belt off its pulley. Set aside.

## Countershaft Assembly



The countershaft assembly includes the countershaft and pulley and the bracket to hold it to the table top. The bracket is hinged and the motor mounts to it. See drawing below. Once the motor is removed it is easy to remove the countershaft and bracket. The countershaft assembly base will be bolted to the work table and attached to the lathe by the tensioning lever. Detach the tensioning lever by removing the cotter pin. If a leather belt is installed, pull the pin that goes through the metal attachment point of the belt and remove the belt. Lower or lean the standard so it won't fall and remove the 3 bolts that attach its base to the work table. Move the countershaft assembly out of the way.

### Countershaft Assembly

- A Belt Tension Adjustment
- B Countershaft Bracket
- C Belt Tension Release Lever
- D Motor
- E Countershaft Bracket Base

## Tailstock

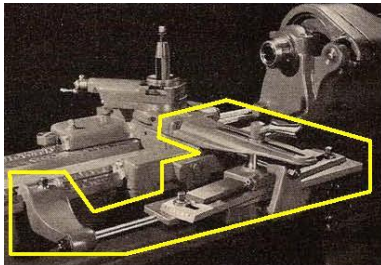
This is the easiest one. The tailstock is on the right side of the lathe and is shown below outlined in green. The tailstock is removed by loosening the bolt on the side of it (shown in the red square), and then sliding the whole thing, including its clamp, off the bed to the right.

## Leadscrew

You won't remove the leadscrew. But you need to know where it is so you can remove the bracket that holds the right side of it onto the bed. This is so you can remove the Carriage in the next item. The leadscrew is shown in the drawing below outlined in purple.

## Carriage: Saddle/Apron

The saddle and apron look difficult to remove but are really fairly easy. They are an assembly in the middle of the lathe between the headstock and tailstock. The saddle is the big H shaped part on the top of the lathe that rides back and forth, and the apron is the part on the front with the big wheel to move it along the bed. The whole assembly is outlined in pink in the drawing below. Some lathes will have a taper attachment on the back of the carriage. It is easier to just unbolt this from the bed, where it attaches with a bracket, and leave it attached to the saddle and apron. See drawing below of taper attachment seen from rear of machine.



If you want to make the carriage a little more manageable you can remove the toolpost (J), from the top of the saddle, by loosening the nut at the top and sliding it off the saddle. There is a bracket on the right side of the lathe which holds the end of the lead screw to the front of the bed. It is outlined in a red box in the drawing. Two screws in the top of the bed hold this in place. They are outlined in red just above the bracket. Carefully remove these screws and slide the bracket off the end of the leadscrew. Next you need to loosen the nut (shown in a red square) that is on top the saddle near the upper right corner of the apron. This allows the carriage to move. Then just rotate the big handwheel (Shown in the big red box) that is on the left side of the apron clockwise. This will move the entire carriage along the bed ways until the whole saddle and apron assembly moves down the ways and comes off the right side of the bed. Be sure to support it as it comes off. Remember to slide the leadscrew bracket back on the leadscrew and secure it to the bed with the 2 screws. Carefully set aside the carriage assembly.

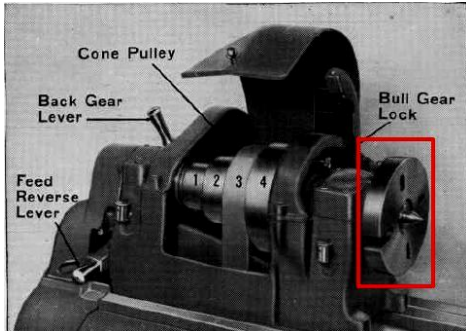
### Taper Attachment (Rear View)

The bracket attaching it to bed is on the left.

## Headstock

The headstock is the big fat thing on the left side of the lathe that has a belt attaching it to the countershaft and maybe has a chuck on the right side of it. The headstock is outlined in light blue in the drawing below. This is the one that scared me when I first thought about doing it, but is quite simple when taken step by step.

First it is useful to remove the faceplate or chuck if they are installed on the nose of the spindle to reduce the total weight. These items can be very heavy and can damage the bed, or hurt you, if dropped. The faceplate is item G in the drawing. See photos below of a faceplate and a chuck mounted on the head stock (They are threaded on – see head stock threaded spindle nose drawing).



Faceplate on Head Stock



Head Stock With Threaded Spindle Nose  
(Head Stock and back gear shown uncovered)  
Face Plate and Chuck thread onto the spindle nose outlined in red.  
Note back gear lever at upper left.



Chuck on Head Stock

Remove by turning counter-clockwise. Since there is no spindle lock, you need to hold the chuck and move the spindle or vice versa. The safest way (To avoid damage) is to use a wrench to hold the spindle itself, but if the chuck is not very stuck first try the following: While holding the spindle cone pulley (D) with a strap wrench, turn the chuck or face plate by hand. Some people use 2 strap wrenches; one on the chuck and one on the spindle cone pulley.

**Note:** First, **Make sure the back gears are disengaged** by pushing the lever away from the lathe (See drawing)! **DO NOT use the back gears to try and hold the spindle.** You may break the back gear teeth. Don't wedge anything in the gears. Use pressure, but no blows to remove the chuck.

Follow the instructions here if the faceplate or chuck is still stuck (This for use only for minor sticking. Major sticking requires more aggressive methods (Multiple applications of penetrating fluid, heat, cold and possibly parting off the faceplate) and tools once you get it home.

Wrap several layers of tape around the take up nut... about 5 layers... I used hockey tape...masking tape will not work. Cover the ways under the chuck with a piece of plywood. Extend the jaws out about one inch. Use a short piece of 2x4 to wedge one of the jaws against the plywood on the bed. Take a pipe wrench and apply pressure to the tape on the take-up nut. If you damage the nut it can be replaced.

If this doesn't work, carefully remove the whole heavy head stock and face plate or chuck assembly as a unit, (being careful not to damage anything).

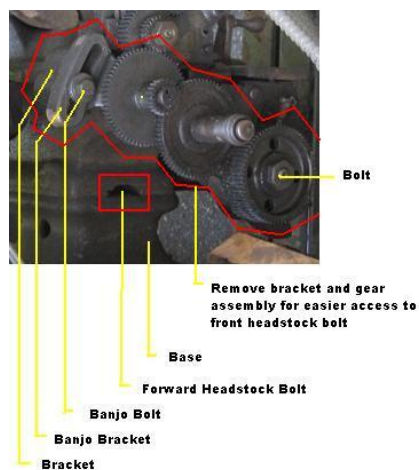
Here is a home shop method for removal: [How to Remove a Stuck Chuck](#)



After removal, if you have a nose protector, it might be a good idea to install it in place of the faceplate or chuck, to protect the threads on the nose of the spindle.

Spindle Nose Thread Protector

There are only 2 bolts holding the headstock to the bed. To gain access to the one at the front of the lathe you need to get some gears and maybe a bracket out of the way. Find the bolt that allows you to detach one end of the banjo bracket containing the gear cluster that blocks the front end of the lathe. See drawing below showing Heavy 10 example. Remove gears, loosen bolts and swing gears out of the way as required to gain access. (Example below shows 2 bolts and 1 gear removed to allow removal of bracket with 2 other gears).



Gears and Bracket at Head Stock

A thin open end wrench may then be used to loosen the headstock bolt. The rear bolt holding the headstock is easily removed with a ratchet and the right length extension bar. Be careful when removing the headstock as it is heavy.



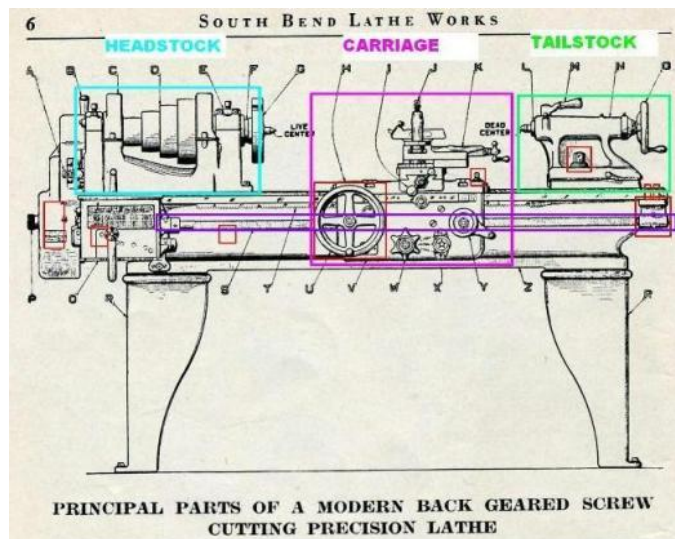
Banjo Bracket and Gear Assembly removed

## Bed and Base or Workbench

The bed bolts to the workbench or table top with 4 bolts and nuts through short legs, or in the case of underneath drive, bolts into a base and legs or a cabinet. Once removed, it is much easier to move, even by one person, especially with a handcart. And this makes the base, legs, cabinet and or workbench much easier to move as well.

If you have followed the above steps, you will have very little difficulty reassembling your lathe for use. The time it takes to disassemble your lathe is about the same time it takes to try to load a fully assembled lathe and base because they are too heavy and very top heavy. It will save you from the danger of damaging a precious machine and hurting yourself. Good luck and have fun with your Lathe.

Bill in Detroit and Ed S.  
SB 9A and 9" 1" Collet Lathes



A—Reverse	N—Tailstock
B—Back Gear Lever	O—Tailstock Hand Wheel
C—Back Gears	P—Sliding Gear
D—Spindle Cone	Q—Gear Box
E—Headstock	R—Leg
F—Headstock Spindle	S—Lead Screw
G—Face Plate	T—Rack
H—Saddle	U—Apron Hand Wheel
I—Cross Feed Ball Crank	V—Apron
J—Tool Post	W—Apron Clutch
K—Compound Rest	X—Cross Feed Lever Knob
L—Tailstock Spindle	Y—Apron Nut Cam
M—Tailstock Lever	Z—Lathe Bed