

Getting the Stubby S750 into your shop

An important note

Almost all the locking screws or bolts on the machine (toolrest, quill, tailstock, bed, motor) have a lift-to-reposition feature. Lift up on the handle and it will disengage from the bolt so that it can be repositioned. It is wonderfully convenient only if you remember about it. As a result, for instance, you should NEVER have to readjust the nut on the bottom of the tailstock lock.

Unpacking your Stubby S750

Breaking down the machine

The machine is shipped on the stand and nearly ready to run except that the rust preventative has not yet been removed and the motor and electronics packages are not installed. Further, it is likely that you will have to disassemble it to get it into your shop and then reassemble it. It is easy to do but is best done by two people. Even if you do not need to disassemble it, it will be helpful if you think through the process since it will help you become familiar with the machine.

Remove packing and the steel banding. If you are not familiar with banding, it is under a lot of tension so be careful since it can bite when cut.

Your major problem, initially, will be the cosmoline – the rust-preventative with which the lathe has been covered. You may need to use a 2 x 4 to get some parts to move but when things are cleaned up, all will move smoothly. I've used both mineral spirits and WD-40 as a solvent and believe that the WD-40 does a better job. You should use WD-40 on the bed regularly (never wax in my opinion) so buying a gallon, a funnel and a pump spray bottle makes sense – much cheaper than the small spray cans.

Remove the **tailstock** from the bed by turning the locking bar counterclockwise.

Remove the **banjos** from the bed. Note that either banjo can be configured so that the tool rest is either at the end with the locking handle or at the opposite end. Also, the riser can be rotated in a number of different positions. Those features combined with the many locations where the auxiliary bed can be mounted will frequently allow easy access to your work.

Remove the **auxiliary bed** with an 8mm hex wrench or an 8mm driver in a 3/8 ratchet wrench. You will not regret owning a set of metric hex drivers which fit a 3/8 ratchet – they will improve your life. The auxiliary bed may be mounted in four different locations on the main bed and also on the headstock. Further, three different sets of mounting holes on the auxiliary bed allow for many different orientations.

Release the **bed** lock (the big arm at the rear) and slide the bed out and off. This may be difficult because of the cosmoline; I frequently have to lever it out with a 1 x 4

between the headstock and the bed and I've broken several 1 x 4s. Note that the locking pin on the back side of the turntable, when removed, allows the bed to be rotated. Also note that the machine serial number is stamped into the bed on the right rear corner.

Remove the parts in the headstock – then make sure you have a 12” tool rest, 4 kip-locks (banjo 1, banjo 2, motor, tailstock lock), a live center, a drive center, a knock-out bar and two wrenches.

The **headstock** is held to the machine base with 4 bolts and is positioned accurately with a keyway. Remove the bolts with an 8mm hex driver and the headstock will lift up and off.

Remove the four bolts (5/16 NC, use a 1/2” wrench) holding the machine's **cast iron base** to the stand.

Disassembly of the stand, if necessary, should be obvious.

The cast iron base weighs about 145 lbs. Everything else is lighter although not light.

At this point you should **clean up** everything with your solvent of choice. Make sure that the pulleys in the headstock are clean and I wouldn't use WD-40 on them.

Reassembling the Stubby

At this point you should know about all you need to know about getting it back together again. But, if the machine is not on the stand, don't mount it yet. If it is, loosen the bolts holding it to the stand.

Now, get the **stand** to the proper height and level and true it. The stand should be set to your desired turning height less 20”. If you aren't sure of what height you want, a good starting point is about 1” above the center of your elbow when you are standing normally. The stand can be adjusted most easily if you have a small bottle jack (from Harbor Freight, about \$10.00). Using the jack on first one end then the other end, you can easily telescope the inner legs even if the lathe is mounted. Get the stand as level and true as you can within reason and make sure all four feet are firmly planted on the floor. Slightly loosen the bolts holding the stand together (including those on the diagonal brace) so that it can settle. Then re-tighten them.

Now, at each corner of the lathe, if the base is sitting on the stand you can tighten the bolt. If there is a gap, you should shim to fill the space and then tighten the bolt. Paper, cardboard are both good shims. You should not pull the base down to the stand because you will rack the casting and may cause alignment problems later on.

Unlock the **spindle lock** which is at the back of the headstock by pulling out and turning so that the pin is aligned with the detent. If the spindle lock doesn't align properly with the dividing head on the spindle, it can be adjusted by loosening the 3 socket head bolts holding it in place, realigning it and then retightening the bolts. This is also a 24

position indexing head.

Mount the **motor**. Tighten down the rear bolt (the pivot) and then back it off a little so that the motor can move. Don't worry about the belt – there is plenty of movement to deal with it later. Then lift the motor from the front and snag the belt inside the headstock. Put it on the slow-speed, high torque pulleys (small motor, large spindle) since most of us leave it there 99% of the time. The belt's grooves should be on the inside to mate with the pulley's grooves.

I find it easiest to mount the motor by standing at the rear, headstock corner of the machine, putting my left foot up on the lower “A” frame rail, and supporting the motor on my left leg while inserting and tightening the bolt and lock.

Strapping the motor: Inside the motor's electrical box you will find three copper straps and two rows of 3 terminals. The straps should be installed so that one connects the top left terminal with the bottom left terminal, one connects the two center terminals and the third connects the two right terminals.

Mount the **variable frequency drive (VFD)** to the stand under the motor. The screws take a 3mm hex driver.

Connect the shielded wiring from the VFD to the motor. The green wire is attached to the grounding lug in the motor electrical box. The other three wires can be attached to either the three horizontal contacts across the top or the bottom – it doesn't matter. From left to right (looking at the back of the lathe) connect orange, blue, yellow. This will assure the lathe will be turning in the correct direction. Other orders of the colors will work but please use the one suggested. Ignore the colors of the wires which are internal to the motor itself. When breaking down the machine, connect and disconnect the wiring from the variable frequency drive (VFD) to the motor at the motor end, not at the VFD end.

Some random thoughts

The VFD displays the **spindle rpm** if you are on the low range. If you are turning on the high range, double the number displayed.

Even if you dial the speed to zero, the spindle will creep slightly – it will not stop turning. This is intentional – if you want the spindle to stop, push the stop button.

The **large red switch** is both the main power switch and the **emergency stop switch**. Currently, the switch is “push to turn off, pull to turn on”. An earlier version was “push to turn off, twist to turn on”. Do not use it routinely to stop the lathe while it is running. Push the stop button on the remote control, wait until the motor comes to a stop and then use the e-stop switch. The switch removes power to the VFD and if this is done routinely while the motor is still running it can shorten the life of the VFD. Obviously, in an emergency, use it and make sure that it is somewhere you can get at it.

Paint has been removed from the base casting on the left rear corner. This provides an

earth ground for the entire lathe.

You can check the alignment of a drive center and a tail center. If they are not close, you can shim between the stand and the machine base in one or more places to get it closer.

If the turntable locking mechanism needs to be adjusted, the bolt to turn can be found in the center of the turntable and you will find that the back end of one of your wrenches is the right size with which to turn it. Also, the same sized bolt is used to hold the handwheel to the spindle.

The banjo locking adjustment, if necessary is done with the nut on the bottom.

The #2 Morse Taper is a holdover from spindle lathes and I believe that it makes no sense to use it to drive large bowl blanks. Instead, buy yourself a good spur drive which screws onto the spindle instead. This is not a weakness of the Stubby -- I believe this should be standard operating procedure with all lathes. Once you have used one of those drives you will never go back to the wimpy small ones. I am now manufacturing a nice 2" screw-on drive which I'd like to sell you and believe that it is the best one on the market.

Read the document on motor braking.

If you are not a member of the **Yahoo Stubby Group**, you really should be. Visit groups.yahoo.com/group/stubbygroup. You will find many of your questions answered there. It is a closed group but you shouldn't have to wait for more than a few hours for your membership to be processed.

Approximate component weights in lbs:

Base casting	145
Headstock	103
Bed	77
Motor & mounting plate	41
Tailstock	27
Auxiliary bed	18
Two banjos, 12" rest, etc.	55
Stand	130
Total	596