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DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL

LATHE, ENGINE, BENCH MOUNTED, SOLID BED TYPE, 10-INCH SWING, NO. 2 MORSE TAPER CENTER, 1-3/8 SPINDLE HOLE, 110-VOLTS, 60-CYCLE, SINGLE PHASE 3/4-HORSEPOWER, W/ARMY DWG NO. 7550151 BENCH (SHELDON MACHINE CO. INC., MODEL XL) (3416-517-0955)

HEADQUARTERS, DEPARTMENT OF THE ARMY
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INSTRUCTIONS FOR UNCRATING AND SETTING UP A SHELDON LATHE

All Sheldon Lathes come completely assembled, tightened up, and ready to be placed on the floor, oiled, and put to work. They come crated with bench legs, floor legs or pedestal base, and motor drives (if any) attached, with all machined and hand scraped parts protected with rust preventative, un-machined parts painted, the entire lathe wrapped in a water and grease-proof cover, and strongly braced and crated. In each crate is a box of "Standard Equipment."

When uncrating, first remove inside cross braces, then remove bottom outside cross braces, loosen upright boards completely around the base, and lift the crate off the lathe. Great care should be taken in loosening crate, as a slip of the hammer or bar can do serious damage to the lathe.

With lathe uncrated, next open your box of "Standard Equipment" and check items included against the "Standard Equipment" listed on packing list. After all parts are accounted for, crating materials may be removed, and you are ready to move your lathe into working position.

In selecting the proper location for your lathe, remember (1) That operation is from the apron side of lathe; allow at least 40" to 48" operator clearance in front of the lathe. (2) That the best working light should shine over the operator's shoulders and should be ample. (3) That lathe must be on a solid (concrete if possible) foundation. If on wood floor, flooring should be braced, if necessary to prevent sagging or settling because the lathe must be set solidly, squarely, and rigidly, and must be level if it is to work accurately. (4) That allowance should be made back end and overhead for later addition of taper attachments, overhead motor drive, or other accessories. End clearance of the headstock should be provided, where possible, if bar stock is to be fed through the spindle. Where the placing of more than one lathe is contemplated, arrangement in oblique rows will save much floor space, as long bar stock for each machine can be fed from stock rests placed behind the adjacent lathe. (5) Bench lathes should be mounted on a heavy rigid and level bench which should be about 28" high.

Before permanently anchoring the lathe to the floor or bench, be sure that the bed is absolutely level. Remember, no lathe can do accurate work unless it is solidly anchored and level both along and across the bed. Shim up any low points in floor or bench using sheet steel or other non-compressible material. After tightening anchor bolts check again for level. Use a precision level.

BOLTING DOWN AND LEVELING YOUR LATHE

PROCEDURE FOR BOLTING DOWN LATHE

If your floor is concrete, anchor bolts are recommended .....if on wood, lag screws. Anchor bolts or lag screws are not supplied with the lathe.

Since the anchor bolts and lag screws must be accurately located in the floor, pre-drilling is not recommended. Neither dimensional drawings nor templates give the accurate center distances required between bolt holes. These can only be obtained by setting the lathe in its exact location and spotting the center of the bolt holes in the floor.

CONCRETE FLOORS

Place the lathe in the location desired, selecting a smooth surface where there are no signs of the concrete floor sagging. Mark the holes to be drilled for the headstock pedestal leg first. Move the lathe aside. Since a 1/2" anchor should be used, drill the holes approximately 7/8" x 1-1/2" deep. Drive in the anchors, and replace the lathe. Partially screw in the hold down bolts in order to hold the lathe in place while marking the holes to be drilled for the tailstock pedestal.

Again, lift or move the lathe aside and drill the tailstock holes. When these anchors are in place, the lathe can be lifted back into position. Partially screw in all of the hold down bolts. The lathe is now ready for leveling.

WOODEN FLOORS

On wooden floors it is desirable to bolt steel plates to the floor at the approximate location of the six hold down and leveling screw bosses on the pedestal legs. The steel plates should be at least 6" square and 1/4" thick. They will provide a good firm support on which to level the lathe and will also tend to eliminate some of the vibration inherent in wooden floors.

Spot the hold down holes in the same way suggested for concrete floors. Drill deep enough to accommodate 1/2" x 6" lag screws. Spot the lathe in place and partially tighten down on the lag screws. The lathe is now ready for leveling.

LEVELING THE LATHE

To accurately level your lathe, a precision machinist's level must be used. In the construction of your lathe, the alignment tolerances were held to tenths of thousandths of an inch. It is important that you hold these same tolerances in leveling. A carpenter's level or a combination square level will not give you the accuracy required. A precision ground bulb level graduated in .0005" per foot is recommended.

(Mark one end of the level with a piece of chalk so that the level always points in the same direction when you are taking your readings.)

Back-off all of the leveling screws to be sure that both pedestal legs are setting solidly on the floor.

Now place the level across both V-ways at the headstock end of the bed. The tops of the V-ways are precision ground to facilitate leveling, and additional parallel blocks are not required. Adjust the two outside leveling screws in the headstock pedestal to obtain a "zero" reading on the level.

Move the level to the tailstock end of the bed, adjusting the two outside leveling screws in the tailstock pedestal to obtain the same reading as on the headstock end.

It will be necessary to repeat this procedure several times, making necessary minor adjustments. You will find that adjustments at one end of the lathe will affect the level of the other. When both ends of the lathe bed are level, turn down the two center leveling screws until they rest under a slight tension on the floor. This tension should not be sufficient to change the level reading.

Although the lathe should now be accurately leveled, it is important to recheck the level both along the flat way and across the bed. Very few, if any, minor adjustments should have to be made.

FUTURE LEVELING

The level of your lathe should be checked at least once a month. You will probably find it desirable to check the lathe level as part of each new job set-up.