

*Illustrated Machinery
Columbian S.C.
29202*

Preparing Lodge & Shipley Lathes For Action

These leveling instructions for Lodge & Shipley lathes have been written to help you give your new lathe the right start. If you read these instructions thoroughly and follow them carefully, you will be repaid many times in the satisfactory performance of your lathe.

THE Lodge & Shipley COMPANY

CINCINNATI 25, OHIO, U. S. A.

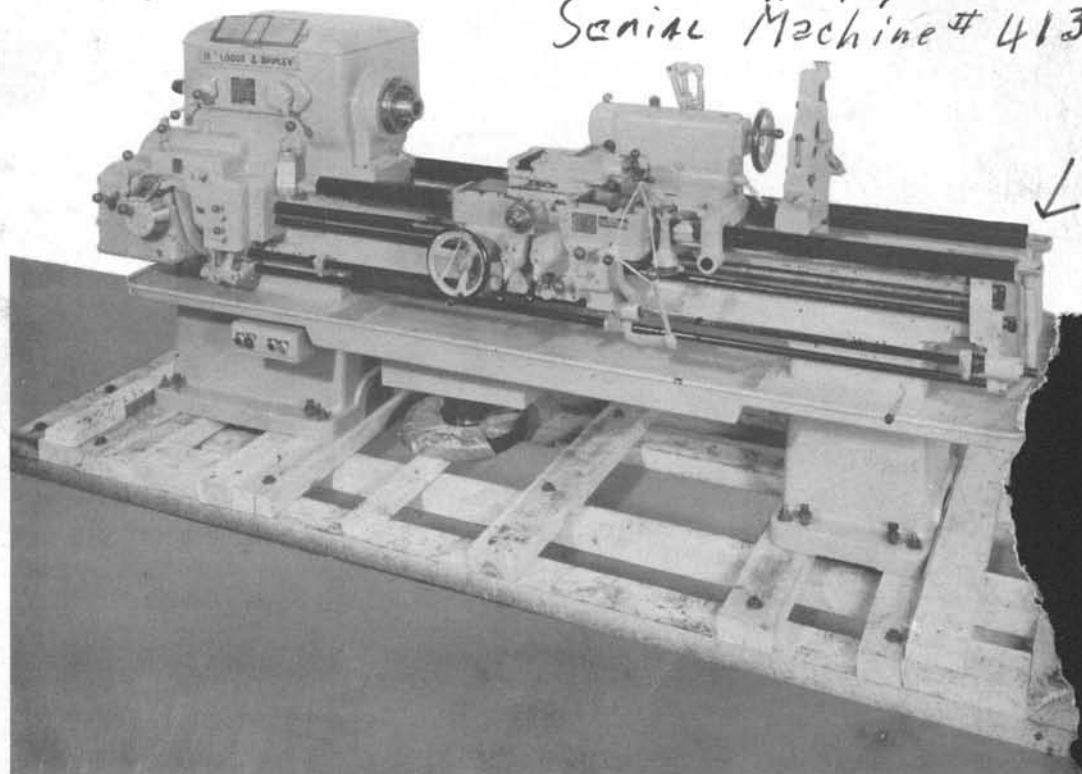
*Setting Tail Stock End of Bed
Flat Horizontal Surface on Boltnway
ENGRAVER*

*MODEL XC16
BPI-200478-Instr.*

AXC-4665 1/2

E.P.-704 L-720

Serial Machine # 41346



Lodge & Shipley Lathe on Skids for Shipment

FOUNDATION

Before arrival of the lathe, a suitable foundation should be prepared. Foundation plans are furnished with the Operator's Manual and Repair Parts Manual. The foundation should preferably be of concrete, but regardless of the material used, it must provide a solid support which will prevent vibration and permit keeping the machine level. The lathe should never be permanently attached to the foundation by bolts or grouting over the legs, since this will prevent keeping the lathe level. If the lathe is out of level for a long period of time, a permanent twist or wind may develop in the lathe bed which would necessitate re-planing.

CLEANING

The carriage, tailstock, or steady rest should never be moved along the bed until after the lathe has been thoroughly cleaned, properly lubricated, and the preliminary leveling operations performed. If possible, the steady rest and tailstock should be removed from the lathe by removing the bottom clamps and lifting the units off of the lathe. Benzine should be used to remove all slush, dirt and grit. The carriage and tailstock shear wipers should be removed, cleaned and replaced, making certain that they make full contact with the bedways before tightening.

Initial oiling of the carriage and bedways should be effected with the liberal use of a squirt can. In addition, of course, it should be thoroughly lubricated in accordance with the lubrication chart and instructions printed in the Operator's Manual. The manual pump lever for the carriage lubrication system (See Figure 1) should also be actuated a sufficient number of times for the oil to appear between the carriage and the bedways.

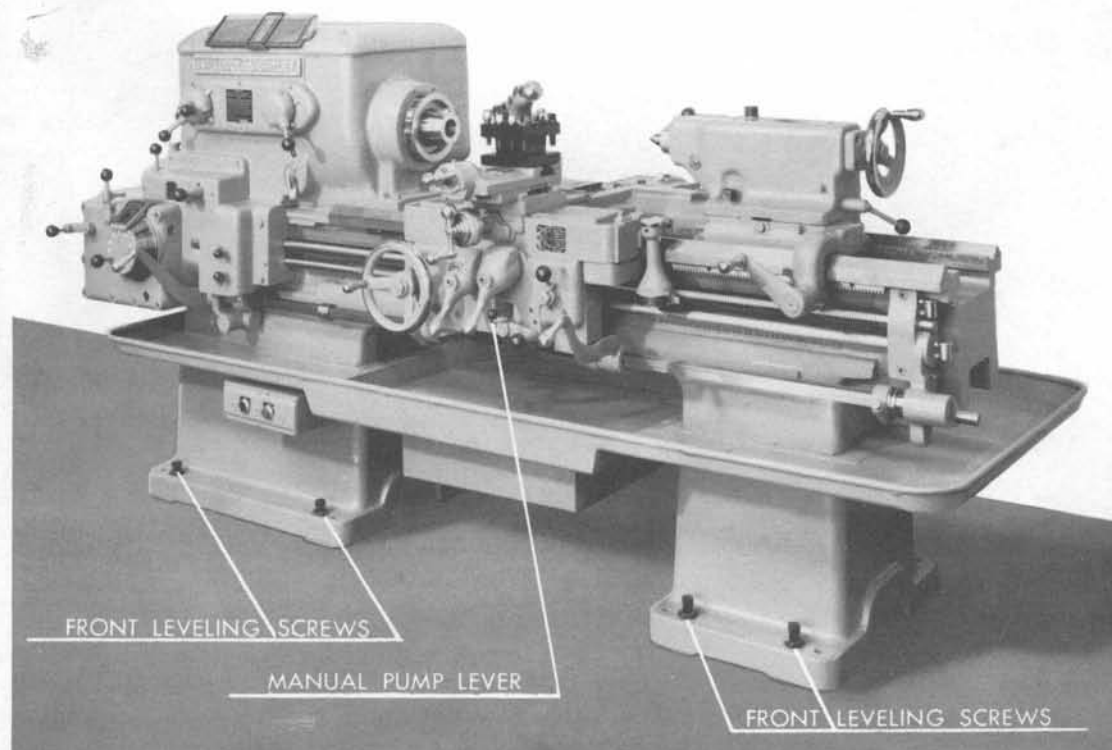


Figure 1

LEVELING

Lodge & Shipley lathes are sensitive and accurate machine tools and must be leveled carefully to insure precise operation. For leveling the lathe, a sensitive machinist's level graduated to at least .0005" per ft. per line should be used.

Each lathe is equipped with four leveling screws on the head end leg, four leveling screws on the tail end leg and two leveling screws on each intermediate leg. The leveling screws are located on the outside corner of each leg (See Figure 1).

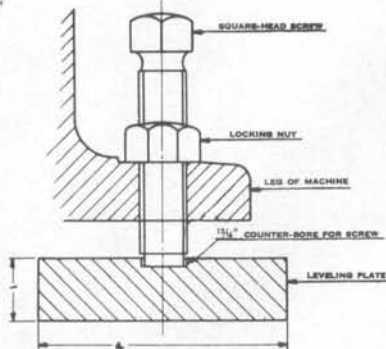


Figure 2

can be located from the leveling screws in the legs of the machine itself. We recommend that the leveling plates be made of hardened steel to prevent burrs from causing a change in level. It is extremely important that each leveling screw support its proportionate share of the weight to reduce any possibility of distortion in the bed that might result in misalignment.

The lathe should be placed on leveling plates at least 1" thick and 4" in diameter, with a 13/16" counterbore approximately 1/8" deep. The counterbore is slightly larger in diameter than the end of the leveling screw. The leveling screw must have a full bearing on the face of the counterbore. (See Figure 2)

If desired, the leveling plates may be set in the foundation flush with the floor, providing the plates are not definitely located until the machine arrives. This is important in order that the plates

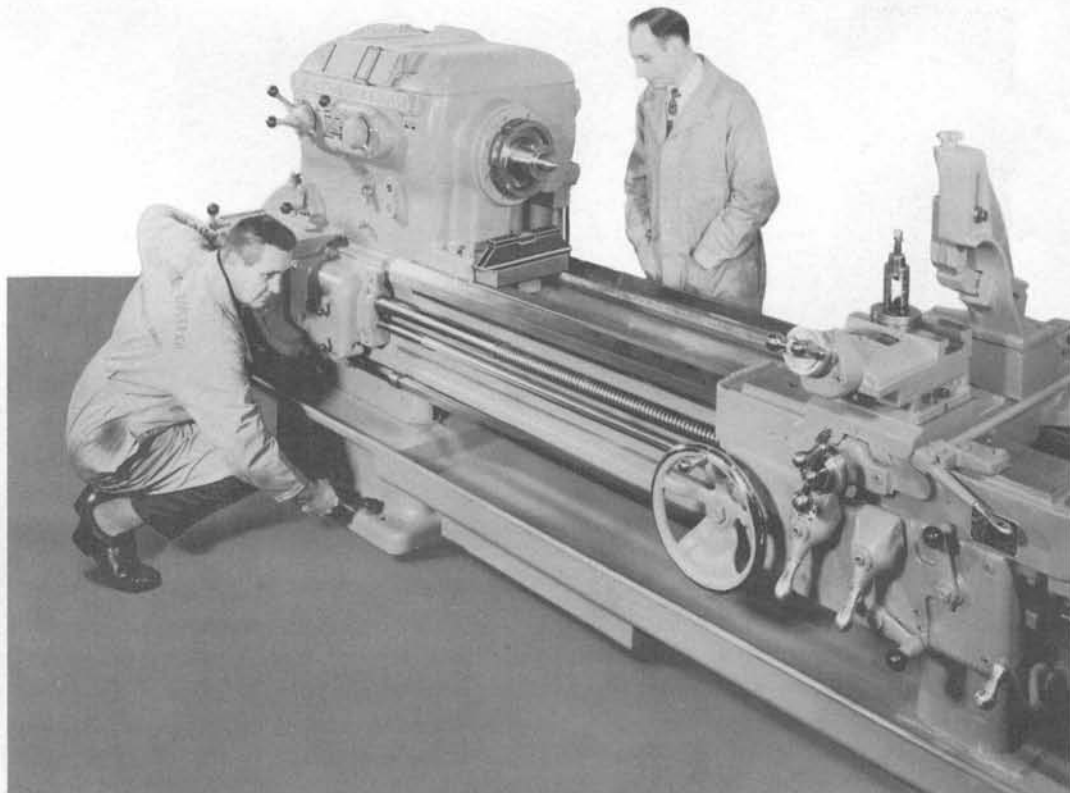


Figure 3

PRELIMINARY LEVELING

The purpose of this preliminary leveling operation is to remove any pronounced twist or wind in the bed. This should be done before moving any of the units along the bed. If there is a center leg on the lathe it should be carrying little or no weight at the start of this operation.

A parallel bar is necessary for the leveling operations unless a level of the proper length is available. In using the parallel bar it should be made certain that there are no nicks, scale or rust that might make the bar untrue.

For preliminary leveling operations on all sizes of lathes except the Model X-14" lathe, the parallel bar, which should be short enough to fit down within the outer Vee ways and higher than the top edge of the front Vee way, is placed across the tailstock flat way and the tailstock Vee way as shown in Figure 3.

On the Model X-14" lathe it is necessary for a 1/8" thick shim to be placed on the tailstock flat way in order to raise the front end of the parallel bar to the proper height for leveling.

Actual preliminary leveling follows the five steps listed below:

- (1) Place the level lengthwise on the tailstock flat way at either the headstock end or the tailstock end, depending on the position of the carriage (similar to Figure 6 or 7). Level the lathe longitudinally.
- (2) Place the level on a parallel bar at the headstock end of the lathe as illustrated in Figure 3. Adjust the screws under the headstock end leg until the level reading is "Zero". In the event that the carriage prevents this procedure, place the level and parallel bar across the carriage wings and proceed in the same manner. This is the only correct alternate method, since the carriage should not be moved until after the preliminary leveling operations are completed.

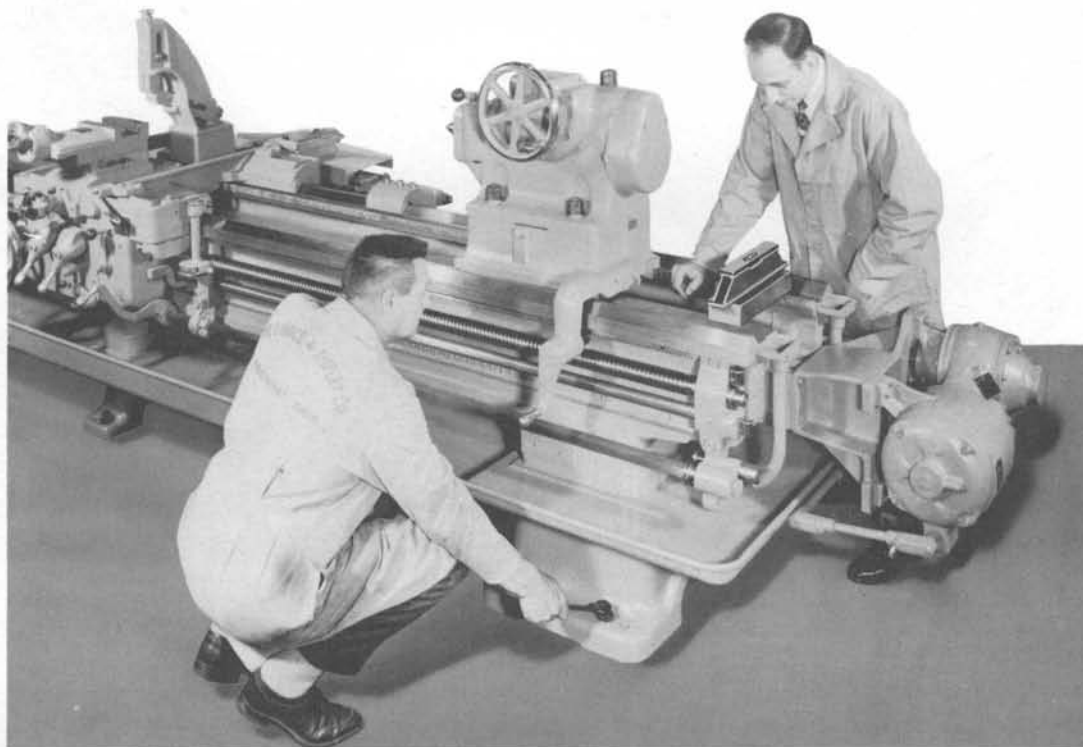


Figure 4

- (3) Move the level and parallel bar to the tailstock end and again adjust the leveling screws until the level reading is "Zero" (See Figure 4).
- (4) On machines equipped with center legs, perform the same operation with the parallel bar and level over each center leg, adjusting the screws on the leg over which the level is placed (See Figure 5.)



Figure 5

- (5) Recheck and make minor adjustments with the level at all positions. Once the above operation has been completed, the carriage can be moved along the bed without danger of causing damage providing the cleaning and lubricating operations have been thorough. The lathe is now ready for final leveling.



Figure 6

FINAL LEVELING

Place the level lengthwise on the tailstock flat way of the bed up close to the headstock (See Figure 6) and adjust the screws under the headstock end leg until the reading is "Zero". At the same time check with the level across the bedways to make sure these adjustments do not cause a twist in the bed. Then place the level lengthwise on the tailstock flat way of the bed at the tailstock end (See Figure 7), and repeat the above operation, again checking with the level across the bedways. Repeat these operations and make whatever minor adjustments are required. On those machines equipped with center legs, this operation should also be performed with the level lengthwise on the tailstock flat way of the bed directly over each center leg.

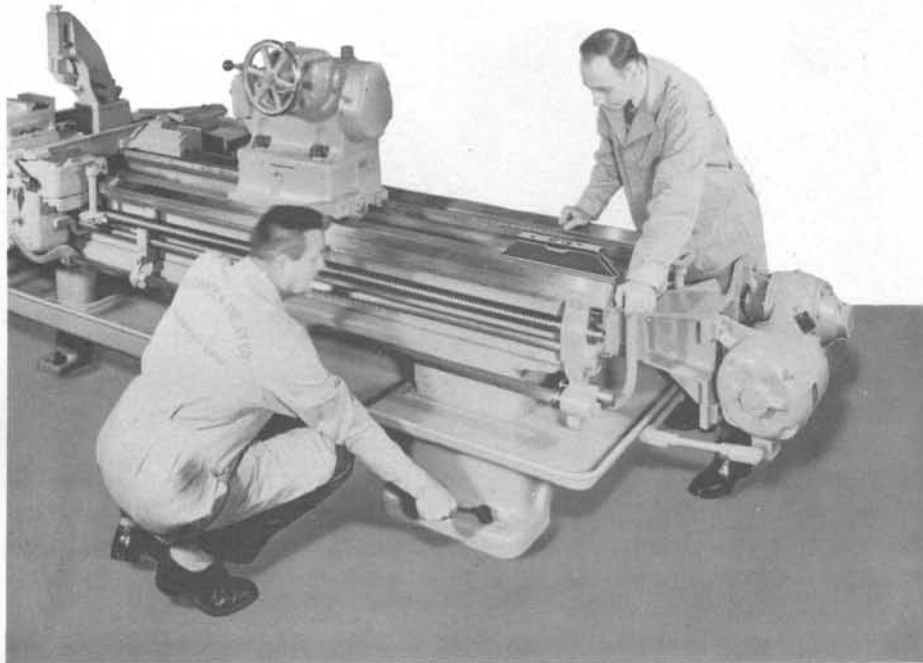


Figure 7

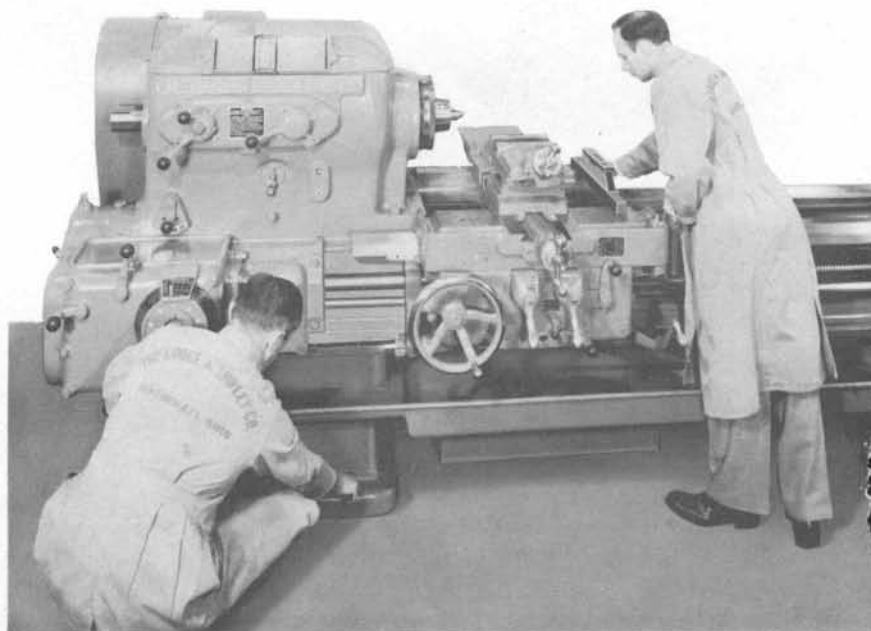


Figure 8

The next operation is to level the lathe crosswise by placing the level on the carriage wings, and a parallel bar if the level is not long enough, (See Figures 8, 9 and 10). Move the carriage from one end of the bed to the other without disturbing the position of the level. If the level shows any variation throughout its travel, the screws located under the point where the variation occurs should be raised or lowered to bring the level back to "Zero".

The level condition of the lathe longitudinally must then be rechecked, as previously described, and minor adjustments made to correct any curvature of the bed. The final check should be made with the level across the wings of the carriage, until the level reads "Zero" at all points. After all leveling adjustments have been made, the locknut on each leveling screw should be securely tightened.

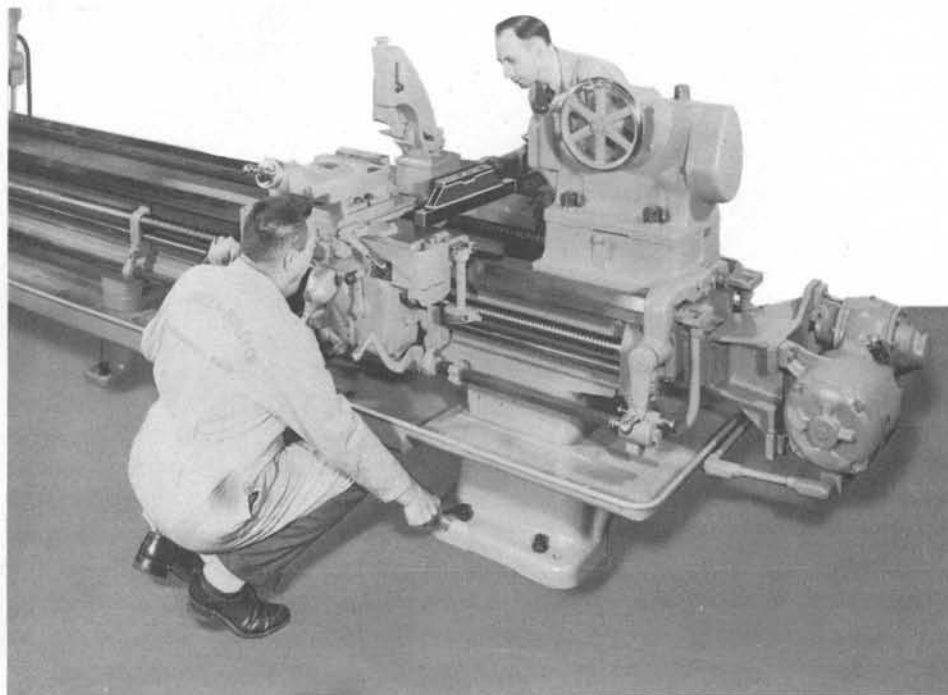


Figure 9



Figure 10

It must be remembered, that any adjustment made to level the lathe in one direction may affect the level of the lathe in the other direction, and it is only a combination of adjustments that will bring the lathe into perfect level which is required to produce precision work.

Leveling your lathe and keeping it level will pay big dividends in increased production and accuracy of work. Unintentional tapered turning and tapered boring are the direct result of the lathe not being properly leveled. Chatter, too, can many times be traced to an improperly leveled lathe.

Give your lathe the opportunity to reproduce it's inherent accuracy. KEEP your lathe properly leveled.



THE WORLD TURNS BEST ON
LODGE & SHIPLEY LATHES

