

Application Note 1

Lathe Alignment

System Recommendations

L-700 Spindle Alignment System



Our patented 4-axis L-700 Spindle Alignment System is a powerful alignment tool that will help you to align boring mill, cylindrical grinding, lathe and turning-center applications up to 70% faster than conventional or interferometer methods. With a resolution of .00002 in. (.0005 mm), live data output and large, color computer graphics, the L-700 is the perfect tool to align headstocks, spindles, sub-spindles and tailstocks quickly and accurately.



Turning Center Alignment Simplified Even on Large Lathes

The critical alignment of a lathe or other turning-type machine is the parallelism of

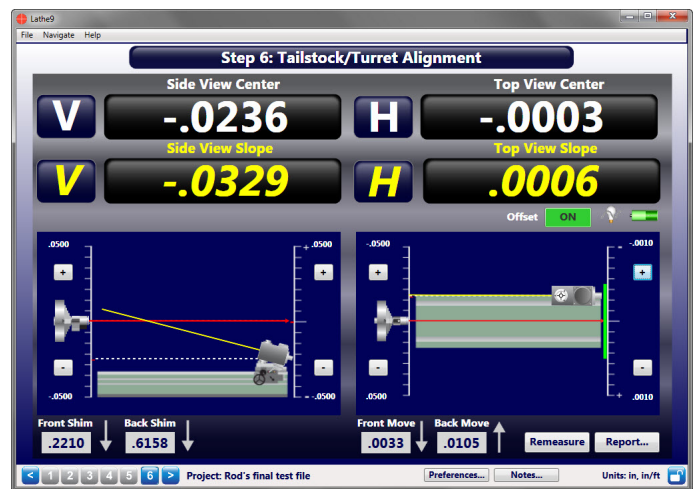
the axis of rotation (AOR) of the spindle to the machine bed and alignment to the tailstock, sub-spindle, turret or tool holder's AORs.

Conventional methods are very cumbersome and time consuming and are practically useless on large lathes. The L-700 vastly simplifies the task by inserting the laser right into the spindle chuck and the T-261 4-Axis Target into the sub-spindle or tailstock. The laser is aligned to the spindle axis of rotation out to 100' (30.5 M). This becomes the reference from which the ways, tool holder and tailstocks can be measured and aligned using the T-261. The software displays a live reading of the horizontal and vertical center (offset) readings and the horizontal and vertical angular (slope) readings of the tailstock to the headstock.

Live Display of Misalignment Data in 10 minutes

The L-700 Spindle Alignment System is so easy to set up that you can have a quick measurement of misalignment data in 10 minutes. The Windows-based software speeds setup and data taking and even corrects for mechanical mounting errors!

As with all Hamar Laser products, the L-700 provides a live display in four axes of misalignment data, which means you can align the tailstock, sub-spindle, etc. while the laser is still in the machine. This is especially useful for tailstock alignment, as it requires 4-axis calibration (horizontal center and angle and vertical center and angle).



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High Resolution (.00001 in.) Improves Part Quality

The L-700 has a resolution of .00001 in. (0.00025 mm) or better for center measurements and .00001 in./ft (0.0008 mm/M) for angular measurements. This extremely high resolution provides the accuracy to dramatically improve your lathe's quality performance and improve its scrap rate. Also by periodically checking a lathes alignment can head off future quality problems *before* they hit the bottom line.

Align Lathe Headstock to Its Bed up to 100 Feet

With the 100-foot (30.5 M) range of the L-700, even the largest lathes can be quickly aligned. Since the L-700 is aligned to the axis of rotation of the spindle, it projects that axis out to 100 feet (30.5 M), allowing the entire length of the lathe to be aligned without changing setups. This is of particular value to large lathes where alignment bars are not practical.

Recommended System Configuration

L-700 Spindle Alignment Laser
T-261A 4-Axis Spindle Target
R-358 Computer Interface w/.05
Micron (.00002 in.) Resolution
S-1403 Lathe9 Software for
Win XP/7/8
R-342 Laptop Computer
A-814 Shipping Case

Optional Accessories

R-1342 Ruggedized Laptop Computer
A-807 Calibration Fixture