

Straight to the Point!

Can You Successfully Align Your Machinery?



I read a paper awhile back on alignment pitfalls by Robert D. Skeirik. He made a very interesting point. The question you should be asking yourself is not, "Can I successfully align my machinery?" but rather, "Which method will provide the fastest possible solutions so you can start up production again.?"

Special points of interest:

- Which method provides the best solution?
- Alignment can be simple
- Save costly time and money

Good alignment reduces down-time and machinery wear and tear, and should be part of the quality control process and the preventive maintenance program. Isn't it better to fix problems before they affect production or quality of the finished product?

There are a few ways that alignment can be done. One is the old piano wire process. There are several problems with this method. The biggest problem is that the tight wire is not always accurate because it tends to sag in the middle. It is also time consuming.

Let me give you an example of how time consuming it is to align a helicopter tail rotor shaft by wire. To align the tail rotor shaft you must first remove the tail boom assembly from the aircraft to perform the alignment. A flat plate is secured to the end of the tail boom, where it is formally attached to the rest of the helicopter, and a section of safety wire is attached to the plate and lead aft. The wire passes through an alignment fixture that represents the gear box and on the way through is directed around a precisely placed pivot point before exiting this fixture. The safety wire passes up to a mounting plate for securing the tail rotor gearbox and is secured to a point on a fixture plate.

Alignment begins by moving the gearbox fixture until the safety wire passes cleanly through a set of guide holes

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Industry Aligned



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on each side of the wire pivot point. The gearbox fixture is in alignment when the wires pass through the holes without touching the edges so that the wire can be strummed and freely vibrates between the tail rotor gearbox and the gearbox, as well as between the gearbox and the forward plate securing the wire.

Once the gearbox is correctly positioned the support hangers (or cradles) for the shaft sections and their bearings are positioned so that they are at the correct centerline position and perpendicular to the wire axis. Shims are added left and right, as well as fore and aft to position these hangers. The whole process is complex, time consuming, and costly.

Another possibility is advise on or perhaps call in a outside contractor to come in and fix the problem. This is completely unnecessary when you can do it yourself. Do you have the time to wait a day or even hours for that matter for them to show up and fix the problem? You are losing time and money waiting when you can do it yourself.

Let's talk about laser alignment! Laser alignment is faster, more precise, less expensive, and safer. You no longer have to climb ladders or whatever acrobatics are necessary to get the wire to the proper measuring location. You get fast, precise answers about your machines right on the spot.

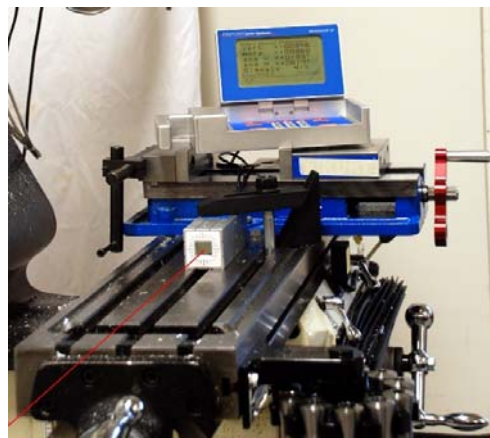
In aligning a helicopter tail rotor shaft, we replace the wire with a laser beam and substituting a digital laser receiver in place of the small bushings and wire passages used on each fixture. Again, it's fast, easy, and precise!

Laser Alignment eliminates the need of manual measurements by making the whole process faster and less labor intensive. A laser will replace the wire. The laser allows for fast rapid measuring saving you time and money.

Pinpoint Introduces the Microgage 4D Receiver

The new 4D Microgage Receiver measures two linear axes X and Y and their two angular components yaw and pitch. The two linear axes show how well machinery is aligned along a common centerline and the angular readouts show if parallelism problems are present. The new 4D Microgage Receiver is ideal for aligning lathes, turning centers, spindles, as well as moving linear slides, rams and pistons, moving mechanical sub-assemblies and more. A compact, digital display provides precise linear and angular readings and is easy and intuitive to use.

The method of operation is simple - a narrow laser beam provides a measuring reference line. The 4D Microgage Receiver measures where this laser line lands on an internal detector and determines the position of a machine or sub-assembly relative to this laser reference beam. This receiver will operate over distances of 100 feet or more and deliver a measuring precision of 0.0001 inch and 0.002 degrees; ideal for demanding industrial alignment applications. The Laser Microgage system along with this new 4D Microgage Receiver puts precise measuring and alignment capability right into the hands of plant engineers and manufacturing personnel, so that they can monitor and optimize their own production machinery and equipment.



Featured Industry: Plastic Sheets and Film

At Pinpoint Laser Systems® we design and manufacture a complete line of products that can help you with aligning your production machinery and improve the efficiency of your manufacturing operation. Our customers working within the Plastics Industry use our products to benefit from better machine alignment. Some application areas include:



- Machine Installation
- Roll & Web Alignment
- Platen-to-Platen Parallelism
- Extruder Bore Alignment
- Tie-Bar Flatness
- Auxiliary Equipment Alignment

We will cut costs and improve your equipment alignment, particularly for straightness, flatness, squareness, parallelism, and all of your other alignment parameters.

Can you find the hidden words?

THEY ARE:

- (7) Rivers
- (6) 4-Letter Animals
- (5) Movie Genres
- (4) Units of Measure
- (3) Military Ranks
- (2) Two Airplane Manufactures
- (1) 12-Letter Word

G E N E R A L N O R Y M A J O R
 K N O N L N I A B O E I N G M E
 B A S I C I O D M G S L W C I A
 N V D L R M N H C B T E D O S D
 F E U E D A P C O M E D Y L S J
 I O H A C T I O N U S B R O I U
 S S O K U E B W R L A E O R S S
 U G S T C D G O T E R A R A S T
 B O G Y A R D J A I G R R D I M
 R A C H A R L E S R E N O O P E
 I T A M A Z O N W I N C H G P N
 A M A R D S E M A H T A G O I T

You can find the answers to these puzzles on our website at www.pinlaser.com

I hope you enjoyed *Straight to the Point!* We would love to hear your ideas and suggestions for future issues. Also, if you have a puzzle you would like published, send an email to our editor, Cindy Lord, cjlord@pinlaser.com.

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*“A perfect summer day is
when the sun is shining,
the breeze is blowing,
the birds are singing and
the lawn mower is broken!”*

James Dent



Pinpoint Laser Systems is a leading manufacturer of precision industrial laser measurement and alignment equipment. Our innovative products are improving manufacturing in factories throughout the U.S. and all over the world. We offer a diverse range of options in laser measurement and alignment equipment that deliver performance through precision resulting in better manufacturing processes, improved efficiency, reduced downtime, and increased profitability.

Pinpoint's trusted products are easy-to-use, extremely versatile, and highly portable.

Our products can be easily set up right on your existing machinery. Once installed, they enable you to begin gathering information to transform your production processes and optimize workflow. Properly aligned equipment runs smoother, more efficiently, experiences fewer breakdowns and lost production time, and ultimately increases your production revenue and profits.



Performance through precision

HAPPY SUMMER!

You have received a complimentary copy of our newsletter. Please look inside for valuable insights on factory alignment and improving efficiency!

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