BENCHMARK TRAINING

A best practices training seminar proven to help you improve machine performance and reduce cost.

MACHINERY INSTALLATION USING PRECISION MAINTENANCE TECHNIQUES

Benchmark
Maintenance Services Inc.

Learn how to establish and sustain a precision maintenance culture for you and your team.

Ask yourself some tough questions:

- *Do you have machine break downs?*
- *Do you know for certain the reasons for these break downs?*
- *Are you sure that the machine has been installed correctly to an established specification?*
- *How do you know? Do you keep a record?*
- *Do you have a tolerances/ specifications not only for shaft to shaft alignment but also for base flatness?*

These are just a few issues that we can get you better results.

It has been estimated that 50% of all rotating equipment will fail prematurely because of mis-alignment. We think that number is inaccurate. At Benchmark, we believe it's more like 90% - and it's not just mis-alignment – it's poor machinery installation practices. It's pipe and coupling stain, twisted bases, softfoot, incorrect key stock, misused hardware and much more!"

CONDITION MONITORING IS AN ESSENTIAL ELEMENT IN A MODERN DAY MAINTENANCE DEPARTMENT BUT BY ITSELF IT WILL NOT IMPROVE YOUR MAINTENANCE EFFORTS.
FIND OUT WHAT WILL IN THIS SEMINAR.

UP-Skill your team. Get the right training.

This unique training program is not just about shaft alignment but rather focuses on the identification and resolution of the inherent problems within the machinery installation process. We cover the machinery installation process from pre-installation to commissioning focusing on Precision Maintenance Techniques. We promote the importance of the M.A.A.D. process.

Measure > Analyze > Action > Document

Many types of alignment are covered including horizontal shaft alignment, machine train (or multi-coupling) alignment, fixed shaft alignment and jackshaft alignment. We also cover belt alignment as well as (basic) geometric measurements including the measurement of straightness, flatness. Our programs are very practical and "hands-on" giving the participants a chance to use the laser system at the end of the training. We use "real world" machines (pumps and motors) at our training centre or on training stands and rigs when at your facility or at a public seminar. Please note that programs can be customized to meet your requirements. .

OUR COURSE OBJECTIVES *are simple.*

1. **Establish the importance the machine's installation has on its life expectancy.**
2. **Identify the items that make the correct installation process unachievable.**
3. **Demonstrate the proper way to install the machine(s) (using Precision Maintenance techniques).**
4. **Confirm the installation has been done correctly and how to monitor the condition of the machine over it's full life cycle.**

Benchmark Maintenance Services Inc.

ONE DAY PROGRAM OVERVIEW

Introduction

- Current and best Maintenance Strategies – Reactive to Proactive focusing on Condition Monitoring and what works.
- Precision Maintenance and why it improves your maintenance processes.
- Machinery Installation practices and the key to optimum machine life.
- The importance of alignment.

Pre-Installation

- Importance of Specifications and Tolerances – knowing the difference between correct standards and misleading ones
- Hardware: Nuts/Bolts, Shims, Key stock, etc. This is an important section that is a big eye opener for many.
- Safety guidelines and comprehensive pre-installation techniques including Checklist/ Guide, Pipe Strain, Coupling Runout, Keyway length, etc.
- Bases: Case Study, Base Measurement procedure, correcting offset and angle.
- Demonstration of traditional, precision digital and laser based measurement methods for base flatness.

Installation

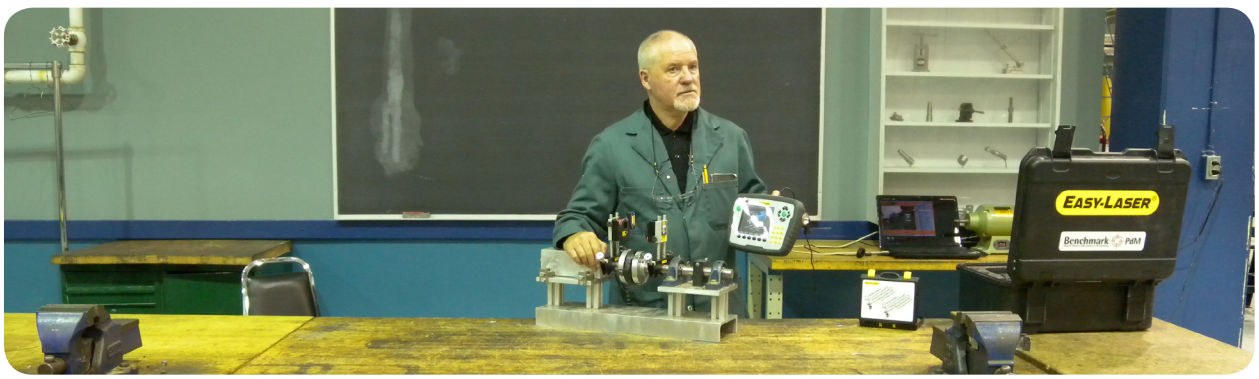
- Soft Foot: What it is and what it isn't. Correct procedure of measurement and correction.
- Four steps to Installing and aligning machine units - M.A.A.D.
- Introduction and demonstration of laser shaft alignment systems.
- Pros and Cons of single and dual beam methods.
- How to measure pipe strain, run out, straightness etc using Live Values program. Rough alignment using beam only. Shaft alignment programs, soft foot measurement, Horizontal shaft alignment, Bolt bound or base bound, Machine train etc. (when applicable) with laser system.
- Introduction to belt & chain laser alignment systems.
- Sheave alignment demonstration focusing on offset and angle.

Commissioning & Condition Monitoring

- Vibration measurement and machine stress test.

This training is essential for everyone who is doing machinery installation regardless of the type of laser or dial system that is used for the shaft to shaft alignment.

FEATURING EASY-LASER®



Who should attend?

This training program is designed for all the people who are involved in fabrication, installation, maintenance and/or repair of industrial equipment. It is also for the people who have to measure and align machinery i.e. pumps and motors. In today's multi-tasking world we have pipe fitters installing machines and maintenance mechanics installing pipe – so we have developed the program for all!

The Instructor

John Lambert served his apprenticeship in Mechanical Maintenance at Fazakerly Engineering in Liverpool, England.

After emigrating to Canada in 1973, he worked in the Aeronautic Industry and in Fiberglas manufacturing. He has held many positions such as millwright/maintenance mechanic, maintenance foreman and supervisor as well as training instructor.

As a training instructor he implemented Reliability Centered Maintenance (RCM) and Total Quality Management (TQM) into engineering and maintenance departments.

In 1994 he started his own business Benchmark Maintenance Services Inc. specializing in rotating machinery installation, training, service and equipment sales.

Arcelor Mittal Dofasco (Steel), City of Toronto (Water supply/ treatment) and Ontario Power Generation (Nuclear) are just three companies (industries) where he has trained literally hundreds of tradesmen in each company.

He has conducted training on offshore oilrigs and paper mills, at chemical plants, cement plants and gold mines.

"This training allowed us to perform better and faster alignments using the laser equipment which will give us a longer life cycle for our machines"

Bernie Mullaney, Mechanical Engineer – FMF Cape Scott, Dept. of National Defense

"The training and support from Benchmark has exceeded our expectations. Feedback from our trainees is always positive!"

Neil Vande Pol, Mechanical Training Technician – Ontario Power Generation, Darlington Nuclear

For more information please contact us: 905-509-6522 or toll free at 1-800-598-1117
Email: info@benchmarkpdm.com Web: www.benchmarkpdm.com