



# MAINTENANCE TROUBLESHOOTING INTERNATIONAL LLC

LPP-301

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## LPP-301 MACHINERY LUBRICATION AND PM PRACTICES

Without a doubt, incorrect lubrication practices cost industry millions of dollars in shortened equipment life and high maintenance costs. Too much, too little, too often, not often enough, wrong choice of lubrication is found more often than expected. This course shows the attendee how to select the proper lubricant (oil or grease) and which choice gives the longest life to bearings and gears. In addition you will learn how to calculate the correct amount of grease for a bearing and how often regreasing is required. You don't need a degree in "tribology—the study of lubrication" to understand this course. Mechanics and engineers walk away with confidence on recommending the proper lubricant and correct lubrication system. Inexpensive spectrographic oil analysis and ferrographic oil analysis are discussed as well as the benefits of troubleshooting equipment wear and lubrication failure. Learn how to use a Visgage portable viscosity meter to determine if oil is beyond the usable life and needs change out. In our ZOOM classes, workbooks and tools are sent in advance to students to allow them to follow along while the instructor demonstrates "hands-on" techniques.



### Friction and Lubrication

- What is friction?
- Sleeve bearing lubrication
- Purpose of lubrication
- Lubrication basic principles

### Differences in Lubrication

- Manufacturing lubricants
- Types and grades of lubricants
- Non-petroleum lubricants
- Grease and thickeners
- Product stream lubrication
- Advantage of oil over grease
- Advantage of grease over oil

### Detergents and Additives

- Purpose of additives
- Additive types

### Viscosity

- What is viscosity
- Comparison between low and high viscosity
- How load affects lubrication
- How speed affects lubrication
- Low speed lubrication

### Viscosity Index

- Temperature effect on viscosity
- Behavior of high vs low viscosity oils
- Properties of mineral oil lubricants
- Measuring viscosity
- Using a portable Visgage
- Review questions

### Resistance to Oxidation

- Why oil oxidizes
- Harmful deposits
- Synthetic oils

### Lubrication Charts

- Which lubrication should I use?
- Application of lube charts

### Greasing

- Choices in grease
- Calibrating a grease gun
- Alemite fittings
- Use of Perma devices
- Calculation of correct amount
- Calculation of proper interval
- Churning example

### Simple Lubrication

- Submerged oil system
- Wet sump lubrication
- Splash lubrication
- Ring type oiler
- Gravity of Feed lubrication
- Bottle lubrication
- Pad and wick oilers

### Circulating Oil Systems

- System components
- Cooler and filter

### Forced Feed Lubrication

- Pump to point lubrication
- Filter priming and pump
- Positive displacement pumps
- Meter divider block
- Check valves

### Oil Mist Lubrication

- Oil mist advantages
- Operating principles
- Mist generators
- Oil mist application

### CLASS FORMATS AVAILABLE

- MTI Hands-On Center \$995/person
  - ZOOM Interactive \$995/person
  - On-Site (Your Location) Ask for Quote
- Quick Quote Available in 48 hrs.

### CLASS DURATION AND HANDS-ON

1-days, 7.5 hours of instruction  
 50% - 60% hands-on activities

**FREE WEIGHING SCALE ISSUED**  
 (\$30 value)

**Class Details:** Each student will receive class books, work activity sheets, self-test progress evaluations, as well as questions from the instructor to make sure they understand the material presented. It is expected that an attendee will leave the class with the basic knowledge of the subject and possess new found skills to better equip them when they return to their job. A certificate suitable for framing will be issued to each attendee who successfully completes the course. Call, email or check the website for the next time this course is scheduled at the MTI training center or as a ZOOM interactive session. On-site sessions? Request a quick 48-hour turnaround quote. Revised: 02/02/2021