

Diesel Pumps Maintenance and Inspection

06 – 10 October, 2019 Kuwait

Introduction:

This Diesel Pump Engine Maintenance training seminar is a comprehensive program that covers basic diesel engine operation including the function, operation and maintenance of the air intake system, fuel system, exhaust system, lubricating oil system, and cooling system.

This is particularly with using the diesel engine to operate the pumps. The course will be directed towards the use of the diesel pumps for main requirements for the whole systems in general.

Proper maintenance inspections allow participants to catch problems before they become bigger, more expensive ones. This training course discusses the type of maintenance programs participants will encounter, and the types of routine inspections participants will be expected to carry out. Also, this course includes diesel engine operation, including how the diesel cycle differs from other types of engine cycles.

The training course also introduces several major diesel engine components and moves on to cover shop safety and tools. Moreover, this Diesel Pump Engine training course will cover all aspects of a modern diesel engine and associated systems including the modern injection systems, exhaust gas recirculation EGR system and engine management system. Some engine problems such as diesel knock will be covered.

Program Objectives:

- Understand the combustion process in diesel engines
- Consolidate and update the understanding of diesel engine components and auxiliaries
- Identify the functions and the operation of various injection systems
- Understand the modern diesel engine management system
- Recognize the engine operation procedures
- Identify engine problems and repairs

The selection, installation and maintenance of equipment including the various types of Pumps is essential. These objectives can only be achieved by understanding the characteristics, selection criteria, installation and

commissioning requirements, common problems and repair techniques, preventive and predictive maintenance of this equipment. This course is a MUST for anyone who is involved in the selection, sizing, applications, installation, commissioning, or maintenance of Pumps. It provides the latest in technology

Who should attend

Mechanical and electrical Engineers and qualified technicians, maintenance and management supervisors involved in the operations and maintenance of engines.

Program Outlines:

Day 1

Basic Principles of the Diesel Pump Engine

- Method of Operation
- Torque and Power Output and Engine Efficiency
- Operating Conditions
- Combustion in Diesel Engines
- Fuel-injection System
- Combustion Chambers
- Alternative fuels for diesel engines
- What Is a Pump?
- Why Increase a Liquid's Pressure?
- Pressure and Head
- Classification of Pumps
- How Pumps Work
- Major Types of Pumps

Day 2

Diesel Engines Components and Auxiliary Systems

- Pump Capacity
- Series Operation
- Main components of Diesel Engines
- Lubrication and cooling systems

- Supercharging and Turbochargers
- Air Supply and Exhaust Systems
- Starting System

Day 3

Diesel Fuel Injection System

- Functions of Injection Systems
- Fuel-injection parameters
- Nozzle and nozzle holder designs
- Unit injector system
- Unit pump system
- Common-rail systems
- EGR System
- Engine Management System EMS
- Sealing Systems and Sealless Pumps
- What Is an O-Ring?
- Basic Principals of the O-Ring Seal
- The Function of the O-Ring
- Static and Dynamic O-Ring Sealing
- Installation, Operation, and Maintenance

Day 4

Diesel Engines Operation and Troubleshooting

- Pre-checks for operation
- Normal Operation Observation and Monitoring
- Shutdown Procedures
- Abnormal Operating Conditions
- Common Problems for Diesel Engines
- Troubleshooting Matrix
- Turn Pump by Hand
- Check Valve and Vent Positions
- Check Lubrication/Cooling Systems
- Prime Pump if Necessary
- Check Alignment
- Check System Components Downstream

- Start and Run Pump
- Stop Pump and Check Alignment

Day 5

Diesel Engine Maintenance

- Diesel Monitoring System
- Vibration and Indicator Diagrams
- Compression Testing
- Fuel-injection pump test benches
- Preventive Maintenance program
- Overhaul Maintenance
- Case Studies
- Repair
- Repair Tips
- Document the Disassembly
- Analyze Disassembled Pump

Training Method

- Live group instruction
- Use of real-world examples, case studies and exercises
- Interactive participation and discussion
- Power point presentation, LCD and flip chart
- Self-test and group activities
- 30% Lectures
- 30% Workshops & Work Presentations, Techniques
- 20% Based on Case Studies & Practical Exercises
- 20% Videos, Software & General Discussions
- Pre and Post Test
- Each participant receives a binder containing a copy of the presentation slides and handouts.

Course Fee : US\$ 4, 500

- **1 participant: 10 %**
- **2-3 participants: 15 %**
- **4 participants and above:25 %**