

Corporate Office

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Maintenance Hydraulic Safety

Course Description: Hydraulic safety is a key part to a highly productive work environment. This course covers all aspects of hydraulic safety. After an overview/introduction, the various types of hydraulic fluids are presented including fire resistance, disposal, and interchangeability. A firm understanding of fluid connectors and conductors is then taught showing where knowledge of leakages, pressure ratings, trapped fluids, inspection procedures, proper hose assembly and routing can sufficiently contribute to a safe workplace. Safety concerns relating to individual components are then covered beginning with charged accumulators, loaded actuators/cylinders, pumps, motors, pressure controls, directional valves, and intensifiers. For each of the components, handling is covered discussing tips on safe installation and removal as well as troubleshooting basics for these components. Finally, tasks such as when to shutdown to perform maintenance, which procedures can be accomplished while the machine is still operating, and shutdown-bleed down procedures will be discussed.

Prerequisites: None

Textbooks:

Learning Objectives:

- Recognize the dangers of trapped fluids, charged accumulators, loaded actuators, springs under load, system capacitance, and compressed air in a system.
- Learn relationships of hydraulic, pneumatic, mechanical, and electrical safety.
- Demonstrate awareness of hot fluids and components
- Demonstrate knowledge of selecting proper fittings.
- Demonstrate the correct way to install a hose for proper position and alignment.
- Explain proper clamping for hose and tubing.
- Know when fire resistant fluids should be used.
- Identify working pressure, safety factor, and burst pressure for hoses.
- State two reasons for fluid conductor supports.
- Recognize pressure ratings and flow capabilities of tubing and pipe.
- Recognize cause of hose failures.
- Identify reasons for specific component failures.
- Troubleshooting fundamentals