



Hydrostatic Closed Loop Systems for Engineers

Course Number 170

Course Description

This course covers the fundamentals and principles of hydrostatic closed loop systems with emphasis on hands-on exercises. Safety followed by basic fluid power principles first set a foundation. Conductors, fluids, and contamination are addressed. The operation and use of individual hydraulic components and how they impact closed loop systems then becomes the focus of the class. Specific components covered in this portion are actuators, pressure controls, flow controls and directional controls, pumps and reservoirs. The remaining portion of the class is then dedicated to hydrostatic transmissions, hydrostatic steering, proportional valves, and servo valves. Print reading is stressed throughout the course and actual prints from the customer are strongly encouraged.

Prerequisites: Some working knowledge of basic hydraulics

Course Length: 3 days

Textbooks: TBD

Course Outline	Learning Objectives
Theory and Operation <ul style="list-style-type: none">- Basic hydraulic principles- Pump-motor loop- Charge circuit- Controls- Accessories	<ul style="list-style-type: none">• Review basic hydraulic principles• Overview of controls• Preventative maintenance• Discuss design of systems• Discuss engineering guidelines of systems• Evaluating reasons for failures
Preventative Maintenance <ul style="list-style-type: none">- Fluid Types- Filtration- Cooling	<ul style="list-style-type: none">• Recognize causes of system failures• Review correct start up procedures
Evaluating Failures and Recognizing Causes <ul style="list-style-type: none">- Contamination- Over-Speed- Heat- Application- Over-pressurization- Excessive slippage	<ul style="list-style-type: none">• Troubleshooting tips
Start up Procedures <ul style="list-style-type: none">- New clean oil- Fill cases of pump and motors- Establish charge pressure- Stroke pump slowly	
Troubleshooting Tips and Discussions <ul style="list-style-type: none">- Charge pressure KEY indicator- Neutral problems- Over-heating- One direction only- Sluggish response- No movement either direction	

