



# HYDRAULIC CONTROLS

## *Condensed Course Outline*

### INTRO & SAFETY

- ☐ Safety procedures
- ☐ Pressure release methods
- ☐ Pascal's Law

### HYDRAULIC PUMPS

- ☐ Pump types & operation
- ☐ Pump identification

### RESERVOIRS & FLUIDS

- ☐ Reservoir components
- ☐ Fluid types
- ☐ Contamination control
- ☐ Oil sampling

### ACTUATORS

- ☐ Cylinders
- ☐ Motors
- ☐ Motor torque

### DIRECTIONAL CONTROL VALVES

- ☐ Spool valve operation
- ☐ Tandem center circuits
- ☐ Blocked center circuits
- ☐ Solenoid valves

### FLOW CONTROL VALVES

- ☐ Meter-in circuits
- ☐ Meter-out circuits
- ☐ Sandwich flow controls
- ☐ Check valves

### PRESSURE CONTROL VALVES

- ☐ Relief valve operation
- ☐ Pressure-reducing valves
- ☐ Unloading valves
- ☐ Counterbalance/dump valves

### HYDRAULIC SCHEMATICS

- ☐ Reading schematics
- ☐ Generating schematics
- ☐ Circuit documentation

### ADVANCED CIRCUITS

- ☐ Sequence circuits
- ☐ Regenerative circuits
- ☐ Counterbalance circuits
- ☐ Parallel circuits

### ADVANCED HYDRAULIC CIRCUITS

- ☐ Complex multi-component circuits
- ☐ Customer-specific circuits

### TROUBLESHOOTING

- ☐ Fault identification
- ☐ Schematic-based diagnosis



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