



2-Day Troubleshooting Hydraulic Systems Training

DATE:

May 4 & 5, 2011

TIME:

7:30 – 4:00 pm

LOCATION:

Twin Falls Park and
Recreation Office
136 Maxwell Ave.
Twin Falls, Idaho

COST:

2-Day: \$ 375.00

Includes:

Class workbook,
Mobile Hydraulic CD,
Fluid Power Data Book,
Certificate of Completion

CONTACT:

FPTA - Representative

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1. REVIEW OF FUNDAMENTALS

- Flow, pressure, horsepower, torque, cylinder speed, cycle time, etc.

2. READING SCHEMATICS & GRAPHIC SYMBOLS

3. UNDERSTANDING SYSTEM OPERATION

4. RECOGNIZING THE NEED FOR CLEANLINESS & FILTRATION

- Types & location of filters • Micron ratings & the beta factor
- Cost benefit analysis • Fluid & seal type compatibility

5. UNDERSTANDING PRESSURE CHECKS

- No pressure
- Partial pressure
- Differential pressure

6. UNDERSTANDING FLOW IN THE SYSTEM

- Pump wear — effects of contamination, heat and pressure
- Slow cylinder movement • Sluggish motor response
- Erratic cylinder operation • Heat & pressure drop

7. CAVITATION – AERATION PROBLEMS

- Inlet restrictions • Sizing inlet filters and strainers
- Pump shaft speeds • Importance of atmospheric pressure

8. DIAGNOSING PLUMBING PROBLEMS

- Correct use of fittings (NPT, SAE, JIC 37°, straight thread O-ring)
- Hose sizing and pressure ratings
- Hose cavitation
- Tubing vs. pipe

9. TROUBLESHOOTING DIRECTIONAL CONTROL VALVES

- Pressure leakage – manual & solenoid control
- Non-pressure leakage – manual & solenoid control
- Solenoid failures

10. CAUSES OF FAILURE IN:

- Sequence valves • Holding valves
- Pressure reducing valves • Unloading valves
- Counterbalance valves • Brake valves

11. TESTING RELIEF VALVE SETTINGS

- System pressure & operating pressure

12. DIAGNOSING CYLINDER AND MOTOR FAILURES

13. USE OF FLOW METERS, PRESSURE GAUGES & PYROMETERS

INSTRUCTOR BIO: George Lonner

George Lonner has degrees from Georgetown University, University of Minnesota and Case Western Reserve University, (Diplomat Mechanical Engineering). He has taught at Gonzaga University, Whitworth College, Auburn University and Washington State University. Mr. Lonner has over 50 years of field and in-plant fluid power experience, including 20 years with Parker Hannifin, where he was responsible for developing company activities in Africa, the Middle East, Latin American and the Caribbean. Since founding FPTA, LLC in 1980, Mr. Lonner has taught over 1000 fluid power training programs worldwide. Mr. Lonner is a certified Fluid Power Instructor and Consultant.