

### COURSE INCLUDES:

Workbook  
Fluid Power Data Book  
Certificate Of Completion



1-Day Program  
8:00 A.M. – 5:00 P.M.  
\$595 Per Person

Ask About Our Custom  
Onsite Programs

**National Fluid Power Institute**  
www.nfpitraining.com  
PH (800) 704-1066  
FAX (800) 704-1367  
523D FM 3179 Road  
Huntsville, TX 77340

1. **Fundamentals Of Hydraulics**
  - Flow
  - Pressure
  - Horsepower
  - Torque
  - Speed
  - Duty-Cycles
2. **Reading Schematics & Graphic Symbols**
3. **Understanding System Operation**
  - System Efficiency
  - Advantages & Disadvantages
  - Braking Systems
  - Open Loop & Closed Loop
  - Load-Sense
  - Steering Systems
4. **Recognizing The Need For Cleanliness & Filtration**
  - Types & Location Of Filters
  - Micron & Beta Ratings
  - Effects of Contamination
  - Petroleum Based & Fire Resistant Fluids
  - Viscosity Index
  - Additives
5. **Understanding Flow In The System**
  - Component Wear – Effects Of Contamination, Pressure & Heat
  - Slow Or Erratic Actuator Operation
  - Case Drain Monitoring
6. **Diagnosing Plumbing Problems**
  - Correct Use Of Fittings (NPTF, SAE, JIC 37°, Straight Thread O-Ring)
  - Hose, Tubing & Pipe Sizing
  - Pressure Ratings
7. **Cavitation & Aeration Problems**
  - Inlet Restrictions
  - Atmospheric Pressure
  - Sizing Filters and Strainers
  - Pump & Motor Shaft Speeds
8. **Troubleshooting Components**
  - Pumps & Pump Controls
  - Motors
  - Cylinders
  - Valves
  - Pressure Controls
  - Volume Controls
  - Steering Systems
  - Braking Systems
  - Fan Drives
9. **Pressure Control Adjustments**
  - Relief Valves
  - Sequence Valves
  - Pilot Operated Valves
  - Counterbalance Valves
  - Unloading Valves
  - Pressure Reducing Valves
  - Brake Valves
  - High-Low Valves
  - Shuttle Valves
10. **Speed Control Adjustments**
  - Meter-In
  - Meter-Out
  - Bleed-Off
  - Variable Speed
  - Variable Displacement
  - Pressure Compensated
11. **Heat Removal From Hydraulic Systems**
12. **Start-Up Procedures**
13. **Hydraulic System Safety**

## REGISTRATION FORM

COURSE LOCATION: \_\_\_\_\_

PERSON TO CONTACT FOR CONFIRMATION: \_\_\_\_\_

STUDENTS: \_\_\_\_\_

COMPANY: \_\_\_\_\_ PHONE: \_\_\_\_\_ EXT: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ EMAIL: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

STUDENT(S) ( \_\_ ) @ \$595.00 PER PERSON \$ \_\_\_\_\_

CHECK IS ENCLOSED  USE OUR PURCHASE ORDER NO. \_\_\_\_\_

VISA  M/C  AE # \_\_\_\_\_ EXP. DATE: \_\_\_\_\_