

Award-winning

# Practical Hydraulics

**WEEK 1**

An intensive, 5-day, hands-on workshop covering mobile and industrial hydraulics.

## KEY TOPICS:

- How To Work Safely with Hydraulics
- Introduction to Hydraulics
- Proactive Maintenance
- How To Read Schematics
- How Hydraulic Components Work
- Basic Troubleshooting Skills
- How To Select and Use Hydraulic Diagnostic Equipment
- Lockout and Tagout

Over \$200,000 of state-of-the-art trainers, cutaway models, and visual aids are used in this multiple award-winning, hands-on workshop for a true, hands-on experience!

Award of



Excellence

*The most successful hydraulic training workshops in the country!*

**WEEK 1**

Presented by  
Rory McLaren  
of the



Salt Lake City, UTAH

## workshop OUTLINE

### SAFETY FIRST without exception!

This is the ONLY hydraulic workshop in the country that will show you how to work safely with hydraulics from beginning to end. The following topics will be presented in detail:

- How To Work Safely with Hydraulics
- Basic Fluid Power Principles
- How To Read Schematics
- Hydraulic Pumps
- Pressure Control Valves
- Directional Control Valves
- Check Valves
- Flow Control Valves
- Actuators
- Accumulators
- Contamination Control
- Proactive Maintenance & Filtration
- Closed-loop (Hydrostatic) Systems and more . . .

## workshop Reference MATERIALS

All of the materials used in this workshop are written and produced by our own team of hydraulic maintenance professionals.

### Workshop Manual- Author: Rory S. McLaren

Comprehensive textbook covering all your workshop material.

### Fluid Power Trainer Student Workbook-

Trainer activities; Component comparison data; Pump performance graphs; Valve performance data; Circuit schematics and problem-solving exercises.

### An Introduction to Closed-Loop Oil Systems-

A step-by-step approach to learning what you need to know about your closed-loop systems.

### A Practical Guide To Filtration for Hydraulic Systems-

Everything a maintenance professional needs to know about filtration.

### How To Interpret Fluid Power Symbols-

A handy manual that breaks symbols down to a level that makes them easy to understand. Includes self-test exercises.

### Complete Guide to ANSI/ISO Fluid Power Symbols-

Any symbol you may encounter in your hydraulic schematics is in this handy pocket-guide.

## WEEK 1 PRACTICAL HYDRAULICS WORKSHOP REGISTRATION FORM- Attend all 5 days for only \$1595!

To register for this workshop by mail, send this form to:  
FLUID POWER TRAINING INSTITUTE™

P.O. Box 711201, Salt Lake City, UTAH 84171-8201

To register for this workshop by phone, call: (888) 222-3421  
or fax this form to: (801) 908-5734, or register online at: www.fpti.org

Please enroll the participants listed below for the following  
5 day Practical Hydraulics Training Workshop:

Please contact me regarding an in-plant workshop.

WORKSHOP LOCATION: Salt Lake City, Utah

WORKSHOP DATES: \_\_\_\_\_

PARTICIPANTS: \_\_\_\_\_

COMPANY: \_\_\_\_\_

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

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIPCODE: \_\_\_\_\_

TELEPHONE: ( ) \_\_\_\_\_ FAX: ( ) \_\_\_\_\_

E-MAIL: \_\_\_\_\_

METHOD OF PAYMENT:  Company check (mail to address above)  
 Credit card (VISA, MasterCard, AmEx accepted)  
 Bill company- P.O. No.: \_\_\_\_\_

CREDIT CARD:  VISA  MasterCard  American Express

NAME ON CARD: \_\_\_\_\_

CREDIT CARD #: \_\_\_\_\_ EXP DATE: \_\_\_\_\_

BILLING STATEMENT ADDRESS: \_\_\_\_\_ CCV #: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIPCODE: \_\_\_\_\_

### Fees are Payable In Advance of Workshop!

Please make checks payable to: FLUID POWER TRAINING INSTITUTE™ (FPTI™)  
A company P.O.# will reserve your space until two weeks before the workshop.

\_\_\_\_\_ Participants attending @ \$1595/ea.

**IMPORTANT NOTE:** TOTAL: \$ \_\_\_\_\_

### DUE TO CLASS SIZE LIMITATIONS, REGISTER EARLY!

In order to maintain an effective student/instructor/trainer ratio, our workshops are limited to a maximum of twenty-four (24) participants.

### GENERAL INFORMATION

Accommodations are not included in the workshop fee. FPTI™ has negotiated discount room rates for those attending our workshops. Upon registering for the workshop you will receive a confirmation detailing what you will need to do to complete your hotel accommodations.

If it becomes necessary for you to cancel your workshop registration you may do so without penalty up to five (5) workdays prior to the workshop. Cancellations made less than five (5) workdays before the workshop will be subject to a 10% cancellation fee. No refunds are given to "no-shows". FPTI™ reserves the right to cancel or change workshop schedules. If this were to happen, you will receive at least two (2) weeks notice and your choice of a full refund or alternate workshop location.

Award-winning

# Troubleshooting Hydraulic Components Workshop

An intensive, 5-day, hands-on workshop for industrial & mobile maintenance professionals.

- **The only Troubleshooting workshop that will show you how to field-test and analyze ALL hydraulic components safely and**

Recommended by  
**100%**  
of the people who attend our workshops!

The most successful hydraulic training workshops in the country!

## WEEK 2



Awarded by:  
NASA  
Lockheed-Martin  
B.J. Services Company  
Universal Technical Institute  
North American Coal Company  
Kennecott Utah Copper Corporation  
... and more!

Presented by  
Rory McLaren  
of the



### Salt Lake City, UTAH

## workshop OUTLINE

Over \$200,000 of state-of-the-art trainers are used in this award-winning, hands-on workshop for a true, hands-on experience!

This hands-on workshop should be mandatory for every mobile & maintenance technician in the country. It is the most useful and informative troubleshooting workshop you will EVER attend because you will **know** how to troubleshoot **every** hydraulic component without having to know its specifications. Most importantly, you will learn how to do test procedures without **ever** having to "crack" a connector to check for pressure, or disconnect a hose and exhaust oil to atmosphere to check for flow - a practice that is extremely hazardous and unscientific.

### SAFETY FIRST - WITHOUT EXCEPTION!

This is the **ONLY** hydraulics workshop in the country that will teach you how to troubleshoot **all** hydraulic components 100% safely and effectively!

### SIGNIFICANT COST SAVINGS

Over 65% of the hydraulic components removed from service are removed unnecessarily because people don't know how to test them. Since you will learn simple techniques that we have developed for testing all hydraulic components, we guarantee that you will reduce the cost of operating your hydraulic system by at least 50%. No more lengthy downtime and waste caused by throwing parts at a problem!

### WHAT YOU WILL LEARN

In this intensive, hands-on, dynamic workshop, you will learn how to troubleshoot and test:

- all types of pumps
- directional control valves
- cylinders & motors
- pressure control valves
- check valves
- and much, much more!

### GUARANTEE

You will learn more about troubleshooting hydraulic components in this workshop than in any other workshop or school in the country - GUARANTEED! Or it's free! Take the troubleshooting quiz on our website and see if this workshop is for you!

### YOUR WORKSHOP LEADER - Rory S. McLaren

*This workshop is based on the book, 'How To Troubleshoot Hydraulic Components Using Leakage Path Analysis Methods', written by your workshop leader. Rory's safety-based test methods are rapidly becoming the standard for testing hydraulic components in the industry.*

## workshop Reference MATERIALS

### Course Workbook- Author: Rory S. McLaren

The most comprehensive study of practical methods for testing hydraulic components ever written. Includes: Trainer activities; test procedures, schematics & problem-solving exercises.

### Troubleshooting Hydraulic Components-

Author: Rory S. McLaren

Over 460 pages of "how-to" information with step-by-step procedures, illustrations, on how and where to install your test equipment for the best result. Sample test sheets, blank test sheets for you to complete, troubleshooting analyses after each test, and common symptoms associated with each problem.

## WEEK 2 TROUBLESHOOTING HYDRAULIC COMPONENTS WORKSHOP REGISTRATION FORM- Attend all 5 days for only \$1595!

To register for this workshop by mail, send this form to:  
FLUID POWER TRAINING INSTITUTE™  
P.O. Box 711201, Salt Lake City, UTAH 84171-8201

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Please enroll the participants listed below for the following 5 day Troubleshooting Hydraulic Components Workshop:

Please contact me regarding an in-plant workshop.

WORKSHOP LOCATION: Salt Lake City, Utah

WORKSHOP DATES: \_\_\_\_\_

PARTICIPANTS: \_\_\_\_\_

COMPANY: \_\_\_\_\_

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

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIPCODE: \_\_\_\_\_

TELEPHONE: ( ) \_\_\_\_\_ FAX: ( ) \_\_\_\_\_

E-MAIL: \_\_\_\_\_

METHOD OF PAYMENT:  Company check (mail to address above)  
 Credit card (VISA, MasterCard, AmEx accepted)  
 Bill company- P.O. No.: \_\_\_\_\_

CREDIT CARD:  VISA  MasterCard  American Express

NAME ON CARD: \_\_\_\_\_ CCV #: \_\_\_\_\_

CREDIT CARD #: \_\_\_\_\_ EXP DATE: \_\_\_\_\_

BILLING STATEMENT ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIPCODE: \_\_\_\_\_

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