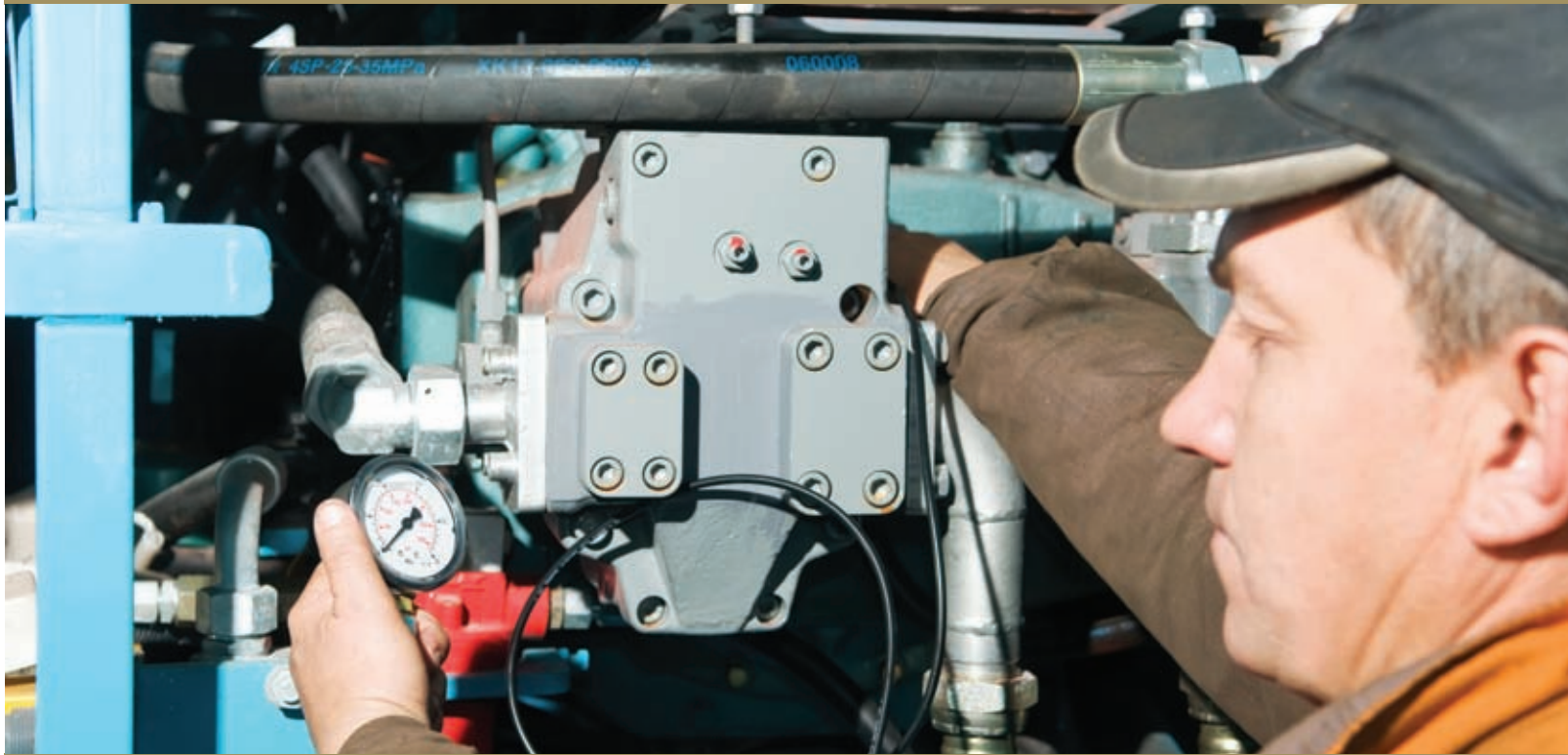




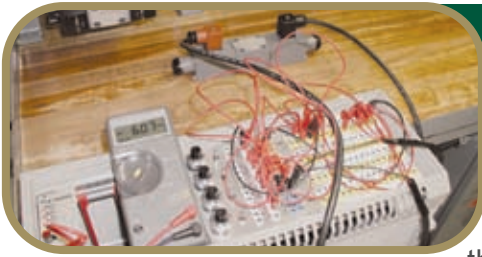
2012 TRAINING SCHEDULE



THE BEST HYDRAULIC, PNEUMATIC, AUTOMATION AND
LUBRICATION TRAINING FOR PLANT MAINTENANCE

 **Livingston & Haven**
DRIVING EFFICIENCY

Livingston & Haven, 11529 Wilmar Blvd.,
P.O. Box 7207, Charlotte, NC 28241
704-588-3670 800-825-4969
Fax 704-588-5622
institute@livhaven.com



UNDERSTANDING PROPORTIONAL VALVES (UPV)

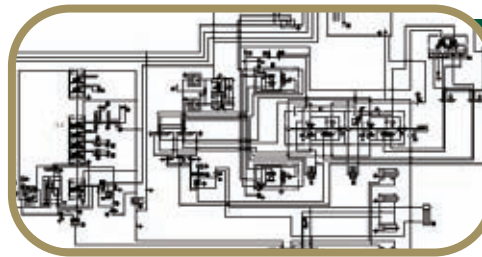
**5 DAY SEMINAR OFFERED TWO TIMES DURING THE YEAR -
April 16-20, Sept. 17-21**

Almost every hydraulic system designed and built today uses electro-proportional hydraulic valves. How do these valves work? How do the electronic amplifiers work that control these valves? What is the difference between open control loop and closed control loop? The Understanding Proportional Valves class will teach students the answers to these questions and more! Plus, students will learn how proportional valves are used to control pressure and flow, as well as direction and speed. Extensive lab exercises teach students how proportional valves work and how to test them for proper operation. This class is an appropriate seminar for both electrical and mechanical maintenance personnel.

3.2 C.E.U.'s Prerequisite: PIH or consent of the instructor.

\$1600.00 includes tuition, text book, student handouts, lunch and refreshments

Appropriate for: maintenance mechanics & technicians, maintenance electricians, supervisors



HYDRAULIC SYSTEM DESIGN (HSD)

**5 DAY SEMINAR OFFERED ONE TIME DURING THE YEAR
Oct. 22-26**

Advanced maintenance personnel and engineering personnel have a need for information related to circuit design and proper component selection and sizing techniques. The class is structured around four hard-hitting modules. Module 1: Sizing, options and application of various hydraulic circuits using standard pressure, directional and flow control components. Module 2: Sizing, selection, options and application of various hydraulic circuits using proportional pressure, directional and flow control components. Module 3: Introduction and application of logic cartridge valves for high flow, high horsepower hydraulic circuits. Module 4: Pump types and application of fixed displacement and variable displacement pumps with pressure regulating type controls.

3.2 C.E.U.'s Prerequisite: PIH & UPV strictly enforced for this advanced course.

Students are required to bring calculators to this training class. Students must have the ability to manipulate and transpose various hydraulic related algebraic equations.

\$1600.00 tuition includes workbook, student handouts, lunch and refreshments

Appropriate for: advanced maintenance technicians, plant and design engineering



INDUSTRIAL LUBRICATION SYSTEMS (ILS)

**3 DAY SEMINAR OFFERED ONE TIMES DURING THE YEAR
Aug. 15-17**

Preventative maintenance and proper equipment lubrication is critical for the prevention of breakdowns. We offer training that will cover operation and maintenance of all types of manual and automatic lubrication systems. Upon request, we can develop a training program based on the specific system(s) at your facility.

\$1000.00 includes tuition, student workbook and handouts, lunch and refreshments

Appropriate for: maintenance mechanics, millwrights, technicians, supervisors, plant engineering personnel



PRINCIPLES OF INDUSTRIAL HYDRAULICS (PIH)

5 DAY SEMINAR OFFERED SIX TIMES DURING THE YEAR-

Jan. 16-20, March 19-23, May 7-11, July 30-Aug. 3, Oct. 1-5, Dec. 3-7

The Principles of Industrial Hydraulics class consists of first level training for maintenance personnel who have not had formal training in industrial hydraulics. Participants will have the benefit of learning fluid principles, standard control valves, pumps, hydraulic valve symbols and that's not all! Learn basic setup techniques and how to troubleshoot hydraulic circuits. Learn how pump controls work and how they are setup. Participants will also be taught the ten fundamental circuits used in most hydraulic systems and an introduction to proportional controls. This is the best foundation training for hydraulics, anywhere - with proven results!

3.2 C.E.U.'s

\$1500.00 includes tuition, workbook, student handouts, lunch and refreshments

Appropriate for: maintenance mechanics, millwrights, technicians, supervisors, plant engineering personnel



PRINCIPLES OF MOBILE HYDRAULICS (PMH)

5 DAY SEMINAR OFFERED ONE TIME DURING THE YEAR-

March 26-30

This is a first level training seminar specifically developed for maintenance and service technicians with mobile hydraulic equipment responsibility.

Students will learn about the principles of hydraulics as these principles relate

to the operation, maintenance and troubleshooting of mobile hydraulic equipment. Students learn to read and interpret mobile hydraulic valve symbols. Students learn about variable displacement pumps and pump controls used with hydraulic systems

3.2 C.E.U.'s

\$1500.00 tuition includes textbook, student handouts, lunch and refreshments

Appropriate for: mobile maintenance mechanics and technicians, supervisors



HYDRAULIC SYSTEM MAINTENANCE (HSM)

5 DAY SEMINAR OFFERED FOUR TIMES DURING THE YEAR -

Feb. 6-10, June 4-8, Nov. 12-16

Second level industrial hydraulic seminar for maintenance personnel who already have a good understanding of hydraulic principles. Learn about proper fluid requirements for modern hydraulic systems, how systems are setup for improved efficiency and improved reliability. In-depth study of component operation and use in hydraulic circuits. Students will elevate their hydraulic schematic reading ability and their troubleshooting ability. Students disassemble, evaluate and assemble standard hydraulic components, putting these components into hydraulic circuits for testing. More than 50% hands-on lab.

3.2 C.E.U.'s Prerequisite: PIH or consent of the instructor.

\$1500.00 includes tuition, workbook, student handouts, lunch and refreshments

Appropriate for: maintenance mechanics, millwrights, technicians, supervisors



PLC AUTOMATION / THE BOSCH REXROTH L SERIES PLC

**3 DAY SEMINAR OFFERED ONE TIME DURING THE YEAR-
July 18-20**

This course is designed to provide a comprehensive primer for PLC technology and programming. Day one will provide an understanding of basic PLC technology. Day two and three cover the implementation of the Bosch Rexroth IndraControl L PLC, including communication, target settings, PLC configuration, task configuration and variable configuration. Several languages will be covered, including structured text, ladder, and function block diagram programming. This class will provide "hands on" examples of PLC circuitry and basic programming.

Students should bring their own computer with a licensed copy of IndraWorks software pre-installed.

\$1350.00 includes tuition, workbook, student handouts, lunch and refreshments

Appropriate as a first course for anyone involved in the application of PLCs.



RESOURCE EFFICIENCY AND CONSERVATION

**4 DAY COURSE OFFERED ONE TIME DURING THE YEAR-
April 2-5**

This seminar shows us the true costs for hydraulic, pneumatic, mechanical transmission and electrical systems. The student will learn the sources of plant facility energy inefficiency. Most important, students learn how plant energy efficiencies can be dramatically improved using proven technology. Students learn how to improve productivity of the manufacturing equipment while dramatically reducing energy costs. These improvements provide real savings year after year.

\$1350.00 includes tuition, workbook, student handouts, lunch and refreshments

Appropriate for: maintenance mechanics, millwrights, technicians, supervisors, plant engineering personnel

HANDS ON TRAINING





2012 TRAINING SCHEDULE



OSHA 10 HOUR OCCUPATIONAL SAFETY AND HEALTH TRAINING

**2 DAY SEMINAR OFFERED TWO TIMES DURING THE YEAR -
April 11-12 & Oct. 17-18**

A program to help bring your company into compliance, including comprehensive information about standards and training required by OSHA.

PARTICIPANTS WILL RECEIVE

- Federal OSHA 10-Hour Authorized Card
- OSHA Compliance Manual
- Certificate of Completion

In Partnership With:



TOPICS INCLUDE:

- Introduction to OSHA
- OSH Act, General Duty Clause
- Inspections, Citations, and Penalties
- Walking and Working Surfaces (including fall protection)
- Exit Routes, Emergency Action Plans, Fire Prevention Plans, and Fire Protection
- Electrical
- Personal Protective Equipment
- Hazard Communication and much more!

INDUSTRIAL TRAINING AT LIVINGSTON AND HAVEN'S STATE OF THE ART LECTURE HALL



LOCATED IN THE NEW CORPORATE L&H HEADQUARTERS

ONSITE TRAINING

On-Site Training Seminars: Not only do we offer training classes in our facility, we also offer training classes in your facility! That's right! We will bring our customized fluid power and lubrication training programs to your company. We offer system specific training on your company's equipment, as well as training in a classroom environment to increase your general understanding. This training is individually tailored to each company so that your maintenance personnel will understand how your equipment works and how it needs to be maintained. Whether it's a single training seminar on your company's equipment or a complete long-term training program, our experts are ready to assist you. Contact us today to discuss your technology training needs!

REGISTRATION

Registration Information: Enrollment for each class is limited to insure maximum student participation. Enroll early to insure your place in the training seminar of your choice. **Payment may be made by check (payable to Livingston & Haven), by major credit card or with your company's purchase order (from which Livingston & Haven will invoice).**

To Enroll: Call: 800-825-4969 or 704-588-3670 ext. 7406 or 7231

Fax: 704-588-5622 email: edh@livhaven.com or wcg@livhaven.com

Mail: The Livingston and Haven Institute, PO Box 7207 Charlotte, NC 28241

Visit us at www.livhaven.com

2012
TRAINING
SCHEDULE

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The Livingston and Haven Institute of Applied Technologies
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