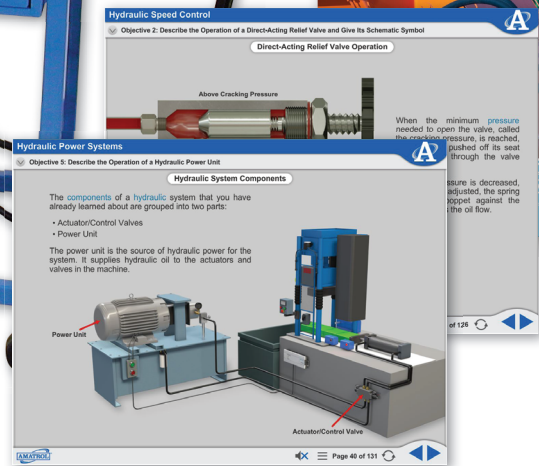
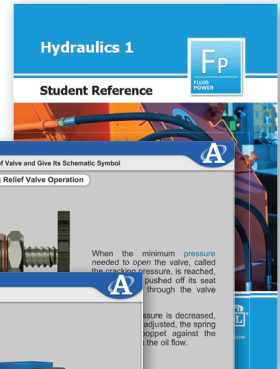


Hydraulics 1 Learning System

Student Reference Guide



Interactive Multimedia Curriculum

Learning Topics:

- Hydraulic Power Systems
- Basic Hydraulic Circuits
- Principles of Hydraulic Pressure and Flow
- Hydraulic Speed Control
- Pressure Control Circuits
- Pumps
- Hydraulic Schematics
- Relief, Check, and Flow Control Valves
- Meter-In, Meter-Out, and Flow Control Circuits
- Sequence Valves
- Pressure Reducing Valves
- Troubleshooting

The Hydraulics 1 Learning System (96-HYD1) introduces industry-relevant hydraulic skills while showing how they apply to fundamental hydraulic principles, such as pressure and flow; this signature Amatrol approach to curriculum reinforces both theory and practice to produce a well-rounded understanding of the topic. As an example, after completing this learning system, learners will not only understand concepts like flow rate versus cylinder speed and pressure versus cylinder force, but also be able to operate, install, design, and troubleshoot basic hydraulic circuits for various applications.

The 96-HYD1 includes gauges, manifolds, cylinders, valves (relief/sequence, pressure reducing, check, directional control), flow meter, and hydraulic motor, as well as a 500 psi hydraulic power unit, manifold set with shutoff valve, and an Amatrol workbench. These components are all industrial quality not only to ensure durability, but also to help learners become better prepared for what they will encounter on the job. All Amatrol products are made from top-notch materials and carefully crafted (hand-welded and painted) to create tough, attractive, well designed learning systems that will facilitate learning for years.



Technical Data

Complete technical specifications available upon request.

Controls Technology Bench (850-CTB-A)

Hydraulic Power Supply (85-HPS)

Basic Hydraulic Valves Module

- Relief/Sequence Valves
- Pressure Reducing Valve Assembly
- Needle Valve Assembly
- Check Valve Assembly
- Directional Control Valve Assembly

Basic Hydraulic Actuator Module

- CAM Operators (3)
- Hydraulic Motor Assembly
- Double-Acting Cylinder Assembly (2)
- Spring, Load
- Flywheel with Key

Basic Hydraulic Instrumentation Panel

- Flow Meter Assembly
- Gauge and Manifold Assembly

Hydraulic Hose and Fittings Package (85-HHF)

- 5-ft. Hose (3)
- 4-ft. Hose (6)
- 3-ft. Hose (2)
- 1.5-ft Hose
- Open End Plug – Quick Connect
- Tee Assembly – Quick Connect

Bench Manifold Kit

Instructor's Guide (C12240)

Installation Guide (D12240)

Student Reference Guide (H12240)

Interactive Multimedia (M12240)

Optional Virtual Trainer (V12240)

Additional Requirements:

- Hydraulic Oil (16391)
- Hand Tool Package (41220)
- Computer, see requirements: <http://www.amatrol.com/support/computer-requirements/>

Utilities Required:

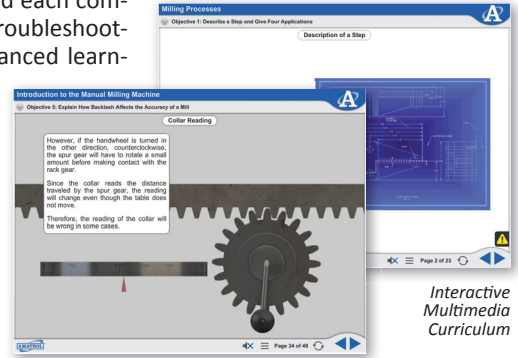
- Electric (120 VAC / 60 Hz / 1 Phase)

Industrial Standard Components and Durable Workstation

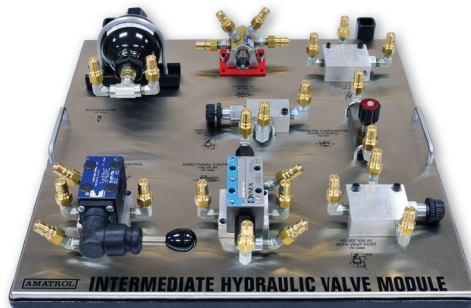
Each 96-HYD1 system features standard industrial-grade components. This attention to quality gives learners experience they would normally only get on the job by helping them recognize industrial components and troubleshoot them more effectively. The 96-HYD1's mobile workstation is constructed of durable welded steel to provide a sturdy, long-lasting learning station. Storage slots are located under the work surface where learners can conveniently store component panels until they are needed. Additionally, the system's orderly, user-friendly design helps learners to easily recognize how each component fits into a hydraulic circuit.

Real-World Conditions

Within the 96-HYD1's interactive multimedia curriculum, learners will first study the physical principles of hydraulics and how hydraulic mechanisms are used in real-world applications. From this building block, learners begin constructing hydraulic circuits, which gradually increase in difficulty and number of industry-standard components as the curriculum goes along. By taking this approach, learners will understand each component's function in a circuit, which makes troubleshooting easier in later lessons and on more advanced learning systems. Topics include pumps, gauges, hydraulic motors, cylinders, and numerous valves, including schematic symbols for each component, creating the ability for users to read and draw their own hydraulic schematics. The 96-HYD1's multimedia offers a highly engaging format that features 3D graphics, video, interactive quizzes, and audio voiceovers of all of the text, as well as a Virtual Trainer Courseware (N12240).



Interactive Multimedia Curriculum



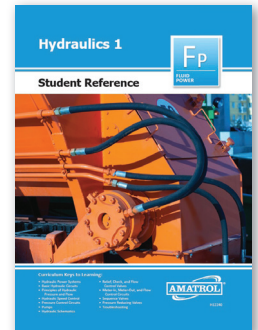
96-HYD2/3

Expanded Learning Options

In addition to Hydraulics 1, Amatrol also offers Hydraulics 2 (96-HYD2) and Hydraulics 3 (96-HYD3), which introduce advanced hydraulic components (pilot-operated check valves, two-position directional control valves, telescoping cylinders, etc.), explains how each works, and then shows how they relate to real-world applications.

Complimentary Student Reference Guide

A sample copy of the Electrical Control Systems Student Reference Guide is included with the learning system. Sourced from the curriculum, the Student Reference Guide takes the entire series' technical content contained in the learning objectives and combines them into one perfectly-bound book. If you would like to inquire about purchasing additional Student Reference Guides for your program, contact your local Amatrol Representative for more information.



Student Reference Guide

