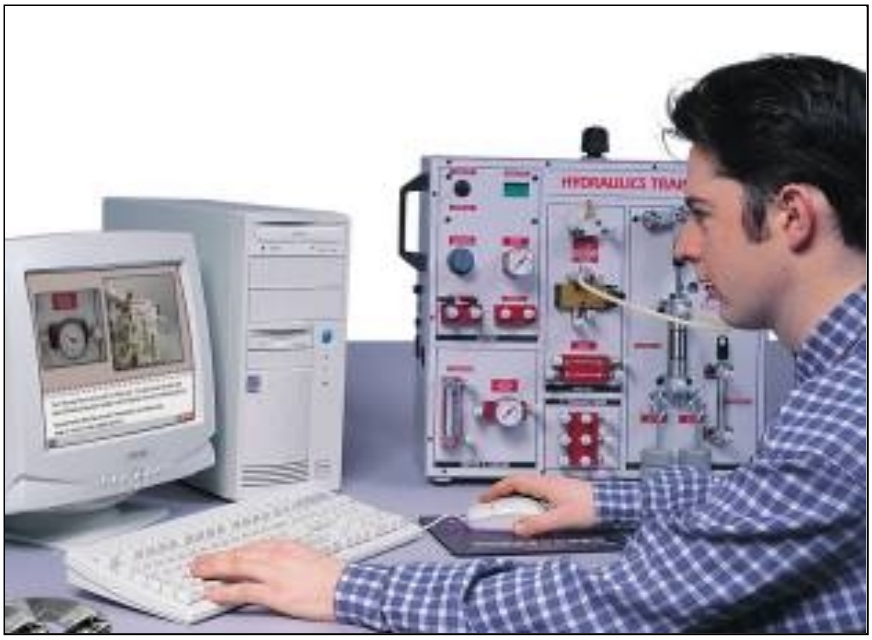
BS1 Fundamental Hydraulic Systems



This is an integrated instructional module designed specifically to operate within an "Instructional Pod" environment. It provides a 15-assignment study program that has been designed for use within the AutoLAB program for core learning. The module package includes hardware, software, and curriculum materials sufficient to complete the learning activities.

The curriculum incorporates continuous assessment through questions. When used in conjunction with a ClassAct networked management system, this provides instant feedback of student performance.

Each assignment is split into at least two tasks and they start with a series of questions designed to track inventory, and ensure that any missing pieces can be located. The tasks are designed to teach fundamental hydraulics, with the research activities based upon on screen material and published textbooks. Assessment questions are incorporated into each task.

The module includes a bench-top hydraulics trainer that allows the student to undertake a series of hands-on tasks that relate to hydraulic systems. This is complete with all the hydraulic devices, connectors, mechanical and electrical components needed to study the following topics.

Typical topic areas include:

- Hydraulic accumulators.
- Pressure drop in a hydraulic circuit.
- Heat generation and dissipation.
- Speed control systems.
- Hydraulic circuits.
- Compression of gases.
- Hydraulic damping system.
- Pressure relief valve.
- Check valves.
- Pascal's Law.
- Energy flow in a hydraulic system.
- Hydraulic lever.
- Hydraulic cylinders.
- Defines a hydraulic system.
- Hydrostatic principles.
- Input and output.
- Lobe, gear and vane pumps.

The module guides the student through task-oriented instruction. The tasks include hands-on practical activities. Each task has a theoretical summary that explains the concepts and automotive applications involved.

The computer presented training material is compatible with the ClassAct classroom management system that can track student progress during these tasks and will report back immediately to instructional staff if a student falls below a predetermined standard or takes too long to perform a task.

Each assignment is designed around a list of performance objectives. These lists include academic, technical, and occupational objectives. The assignments are written in such a way as to enable a student to attain the performance objectives, with the assessment questions linked to these in order to provide a measure of true competency.

The performance objectives are used by the ClassAct management system to generate a comprehensive portfolio of student competency reports. The module includes a default competence report addressing the latest NATEF standards.

Typical activities include:

- Investigate the use of cylinders in the automobile.
- Test the compressibility of fluids.
- Identify Pascal's law and its relationship to pressures within hydraulic circuits.
- Build a hydraulic circuit that includes a control valve.
- Simulate a hydraulic disc brake system.
- Calculate cylinder volume, pressure, and efficiency.
- Control a sequence of cylinders.
- Investigate systems that use high pressure hydraulics.
- Work with hydraulic systems that operate as a safety system.
- Identify how heat affects hydraulic systems.
- Select cylinders for an industrial application.
- Solve problems with hydraulic systems.

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The items supplied with this instructional module include:

- BS1 Instructor's Guide
- BS1 On-Screen Multimedia Manual CD-ROM
- BS1 Voice-Overs CD-ROM
- NATEF Instructor's Resources CD-ROM
- Health and Safety Sheet
- D280 Hydraulics Trainer
- Plastic Funnel
- Mixing Jug
- Pack of Paper Towels (Consumable Item)

Additional items required:

- Computer
- Access to Printer

NATEF task list areas addressed:

- V-A1 P-1
- V-B1 P-1
- V-B5 P-1
- V-B9 P-2
- V-B10 P-3

Module Facts

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	No.	Average time
Assignments	15	90 minutes
Extension Activities	7	60 minutes
	Total	29 hours

LJ Technical Systems
Web site: www.ljgroup.com

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