Welcome

We’re LJ Create, education specialists since 1979

Since 1979 we have been providing award winning, world-class active learning solutions for technical education.

Today we create complete systems combining digital lesson libraries and tailor-made hardware kits that deliver innovative, inspiring learning in science, technology, automotive, and engineering.

At LJ Create our mission is to enable learners throughout the world to achieve their full potential in a wide range of science and engineering areas by providing innovative teaching solutions for schools and further education.

AutoLab has been one of our flagship learning programs since 2001. Now we are relaunching AutoLab alongside Working with STEM, our brand-new cloud-based library of over 4,300 vocational lessons.

Our Medium/Heavy Duty Truck Trainers are an important element of the AutoLab program, forming part of the complete system of hardware and software for teaching automotive repair skills to NATEF standards.

Alternatively, our high-tech trainers could make a fantastic addition to an existing program in your high school or college.

Our skilled team of curriculum developers are automotive specialists; they produce up-to-date lesson plans, teaching materials and assessments to make teaching and documentation easy.
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Inspired by NATEF’s specific tasks and learning outcomes (2014), the AutoLab learning journey equips your students with the skills, knowledge, and experience they need to become successful medium/heavy duty truck technicians.

AutoLab guides students through each lesson in the task, with a series of Knowledge Lessons in the form of presentations, simulations and investigations to reinforce a theoretical understanding of the subject area. At this point, you can confirm your students’ knowledge with a short assessment.

Once students are confident, they can move on to practical Skills Lessons in the classroom or shop, using our operational rigs, panel trainers, circuit board trainers, and sectioned trainers. Again, you can confirm your students’ knowledge with a short assessment.
### Key:
- **A**: We provide content to cover all tasks
- **B**: We provide content to cover most tasks
- **C**: We cover all tasks using automotive content
- **D**: We provide content for half the tasks
- **E**: We provide supporting content for this area

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The AutoLab digital library is a comprehensive resource for all the theory behind NATEF’s specified subject areas. Students can access the library through an online portal; no specialist software or downloads are needed. An Internet connection and browser is all they require to access our collection of Knowledge Lessons.

Our Knowledge Lessons consist of Presentations for use in front of a class, or for students to refresh their knowledge individually; Investigations where students can put knowledge into practice with tasks and challenges; and Assessments, short quizzes with instant feedback so you can be confident that your students are ready to progress.
Support and Standards
It’s easy to see where our lessons align with NATEF, just use the Standards menu on the right to filter lessons by NATEF level, subject and task.

We also include academic support in the science and math concepts relating to each subject area. Just click on the Support tab for supporting lessons.
Medium/Heavy Vehicle Rigs
Hardware

6-Cylinder Truck Diesel Engine (Common Rail) Trainer (776-01/6C)

This trainer provides the instructor with a complete working 6-cylinder heavy vehicle diesel engine with a Bosch EDC engine management system and high-pressure common rail fuel injection system. The trainer is mounted on a moveable, heavy-duty steel frame.

**Trainer enables demonstration of the following:**
- The position and mounting of all engine components
- Engine management system fundamentals
- Sensor and actuator components
- Real faults can be inserted allowing for demonstration of diagnostic techniques

**Order as:**
- 776-01/6C 6-Cylinder Truck Diesel Engine (Common Rail) Trainer

**Also available:**
- 776-01 4-Cylinder Truck Diesel Engine (Common Rail) Trainer
- 776-04/6C 6-Cylinder Truck Diesel Engine (Tier 4/EPA 2010) Trainer

![Diagram of 6-Cylinder Truck Diesel Engine (Common Rail) Trainer](image)
Sectioned Truck Diesel Engine (6-Cylinder) Trainer (779-01/6C)

This trainer provides the instructor with a fully sectioned 6-cylinder truck diesel engine for group or whole-class demonstration. The trainer is mounted on a self-contained steel frame and base plate, complete with castors.

Order as:
- 779-01/6C Sectioned Truck Diesel Engine (6-Cylinder) Trainer

Also available:
- 779-01 Sectioned Truck Diesel Engine (4-Cylinder) Trainer

Electronic Controlled Air Suspension Trainer (777-01)

This trainer provides the instructor with a fully operational Electronically Controlled Air Suspension (ECAS) trainer, manufactured using original components. It is based on a DAF ECAS III 4x2 truck.

The trainer is mounted on a self-contained steel frame and base plate, complete with castors.

Order as:
- 777-01 Electronic Controlled Air Suspension Trainer

Disc and Drum Braking System Trainer (763-01)

This real component-based trainer provides students and instructors with the opportunity to demonstrate and investigate the operation of a typical automotive braking system.

The trainer is designed to allow access to disc and drum brake components, as well as providing the opportunity to understand the operation of the hydraulic circuit.

Order as:
- 763-01 Disc and Drum Braking System Trainer
This real component trainer provides the instructor with a working steering and suspension system for group or whole-class demonstration.

This includes all the individual components of the system presented on a moveable, steel frame so that each component can be clearly identified.

Typical practical demonstrations include:
- Disassemble, inspect, and reassemble rack and pinion steering gear
- Inspect steering shaft universal joint, flexible coupling, collapsible column, lock cylinder mechanism
- Inspect power steering fluid levels and condition

Order as:
- 764-01 Steering and Suspension System Trainer
Air Brake Tractor/Trailer System Trainer (778-01)

This comprehensive, panel-mounted system provides a fully operational 2-line air brake system, as fitted to a typical heavy vehicle tractor and trailer unit. The trainer features quick-fit connectors over the whole board.

Order as:
- 778-01 Air Brake Tractor/Trailer System Trainer

Also available:
- 778-02 Air Brake Tractor/Trailer System Trainer with ABS
- 778-03 Air Brake Tractor/Trailer System Trainer with EBS

US schematic
Medium/Heavy Sectioned Trainers

Hardware

Sectioned Truck Gearbox Trainer (780-01)

This trainer provides the instructor with a fully sectioned truck gearbox for group or whole-class demonstration. The trainer is mounted on a self-contained steel frame and base plate, complete with castors.

Typical practical tasks and topics include:
- Identification of main gearbox mechanical components
- Operation of gearbox and reduction components
- Identification of crawler range components
- Identification of synchro hubs

Order as:
- 780-01 Sectioned Truck Gearbox Trainer

![Diagram of a sectioned truck gearbox trainer with labeled parts: Gear cluster, High/low shift cylinder, Neutral lock unit, Bell housing, Output flange, Self-contained steel frame and base plate, complete with castors, Hand crank for manual operation of gears.]
Sectioned Truck Rear Axle (with Reduction Hubs) Trainer (781-01)

This trainer provides the instructor with a fully sectioned truck rear axle, for group or whole-class demonstration. The trainer is mounted on a self-contained steel frame and base plate, complete with castors.

Order as:
- 781-01 Sectioned Truck Rear Axle (with Reduction Hubs) Trainer

Four Wheel Drive Sectioned Gearbox

Order as: 786-01

Sectioned Heavy Vehicle Clutch

Order as: 787-01

Four Wheel Drive Sectioned Drivetrain

Order as: 786-02
Medium/Heavy Panel Trainers

Heavy Vehicle Electrical Systems Panel Trainer (757-01)

This trainer provides students and instructors with the opportunity to demonstrate, investigate, and fault-find a simulation of typical diesel electrical systems.

The trainer is designed to allow access to a variety of test points for vehicle electrical components, as well as provide an understanding of the overall system layout and configuration.

Order as:
- 757-01 Heavy Vehicle Electrical Systems Panel Trainer

- Starter motor and solenoid circuit test points
- Cold starting circuit test points
- Auxiliary lighting circuit test points
- Fault insertion options to simulate real-world system malfunctions
- Windshield wiper circuit test points
- Retractable feet for desktop use (can also be wall-mounted)
Air Conditioning Systems Panel Trainer (754-01)

This trainer provides students and instructors with the opportunity to demonstrate, investigate, and fault-find a simulation of a typical automotive air conditioning system.

The trainer is designed to allow access to controls for the vacuum system, electrical system and recharging station, as well as provide an understanding of the overall system layout and configuration.

Order as:
- 754-01 Air Conditioning Systems Panel Trainer

Anti-Lock Braking Systems Panel Trainer (755-01)

This trainer provides students and instructors with the opportunity to demonstrate, investigate, and fault-find a simulation of a typical 4-wheel anti-lock braking system.

The trainer is designed to demonstrate ABS hydraulic and electrical system operation, as well as provide the ability to simulate changes in road conditions that impact ABS operation.

Order as:
- 755-01 Anti-Lock Braking Systems Panel Trainer

Diesel Engine Management Systems Panel Trainer (758-01)

This trainer provides students and instructors with the opportunity to demonstrate, investigate, and fault-find a simulation of typical diesel engine management systems.

The trainer is designed to allow access to a variety of test points for vehicle electrical components, as well as provide an understanding of the overall system layout and configuration.

Order as:
- 758-01 Diesel Engine Management Systems Panel Trainer
Medium/Heavy Circuit Trainers

Hardware

Auto Electronics Trainer (700-10)

This hands-on learning resource allows students to build a variety of introductory automotive electronic circuits using a range of on-board and carrier-mounted components. Students are set tasks that encourage them to explore circuits practically to help develop their understanding of electrical components, circuits, and systems.

Typical practical tasks and topics include:
- Measure and construct simple circuits
- Investigate the operation of battery, fuse, switch and lamp components
- Ohm’s Law and resistance
- Switches in series and parallel

Order as:
- 700-10 Auto Electronics Trainer
Heavy Vehicle Lighting Circuits Trainer (701-03)

Typical practical tasks and topics include:
- CAN bus lighting systems and CAN signals
- CAN control of lighting circuits: headlamp, brake, reverse, dipped beams, hazard warning lights, direction indicators, automatic lighting
- Finding and diagnosing CAN lighting faults

Order as:
- 701-03 Heavy Vehicle Lighting Circuits Trainer

[Image of the trainer with various components labeled]
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