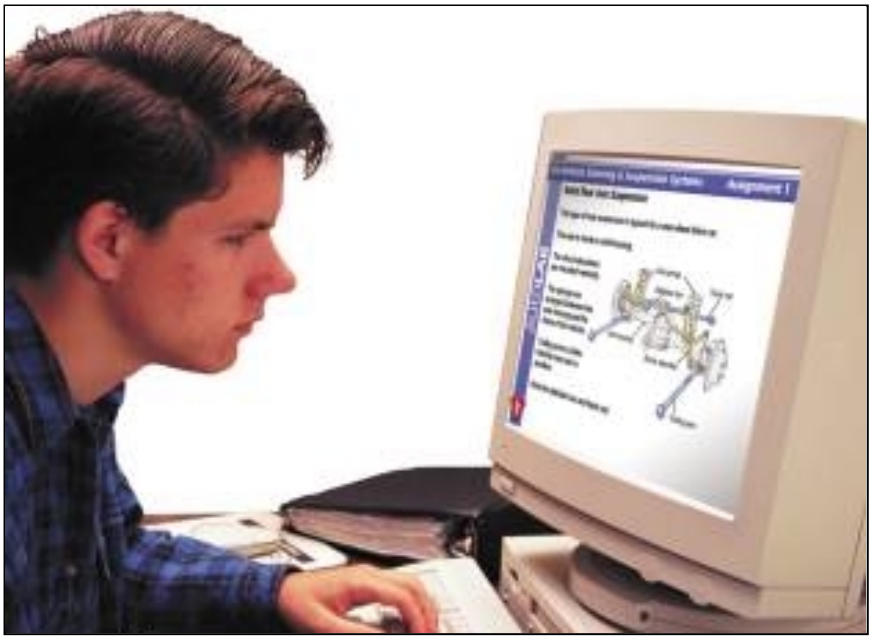
SSS3 On-Vehicle Steering and Suspension Systems



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 on-vehicle steering and suspension systems, with the research activities based upon on screen material and published textbooks.

Assessment questions are incorporated into each task and a series of job sheets that are printed out by the student are used to guide them through the related shop activities on real vehicle systems.

This module consists of a comprehensive series of computer aided instruction assignments that enable students to learn about steering and suspension systems. The dynamic computer aided instruction provides interactive animations and high resolution graphics that help the student understand the topics being delivered.

In addition to providing the underpinning knowledge on steering and suspension systems, the module also provides a series of practical activities.

These are presented to the student as a series of workshop job sheets, which will require access to a vehicle in a fully equipped automotive workshop.

Typical topic areas include:

- Steering system fundamentals.
- Suspension system fundamentals.
- Supplemental restraint systems.
- Steering column problem diagnosis.
- Non-rack and pinion steering gear systems.
- Short and long arm suspension systems.
- Coil springs.
- Torsion bars.
- Stabilizer bars and related hardware.
- MacPherson strut problem diagnosis.
- Steering linkages.
- Leaf springs.
- Electronically controlled suspension systems.
- Electronically controlled steering systems.

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:

- Disable, remove and enable supplemental restraint system (SRS) in accordance with manufacturer's procedures.
- Lubricate steering and suspension system.
- Diagnose power steering gear (rack and pinion & non-rack and pinion) binding, uneven turning effort, looseness, hard steering, and fluid leakage concerns.
- Remove and replace steering wheel; center/time supplemental restraint system (SRS) coil in accordance with manufacturer's procedures.
- Diagnose steering column noises, looseness, and binding concerns (including tilt mechanisms), and power steering fluid leakage.
- Remove, inspect, and install upper and lower ball joints on short and long arm suspension systems.
- Adjust manual or power non-rack and pinion worm bearing preload and sector lash.
- Remove, inspect, install, and adjust suspension system torsion bars, and inspect mounts.
- Remove, inspect, and install stabilizer bar bushings, brackets and links.

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The items supplied with this instructional module include:

- SSS3 Instructor's Guide
- SSS3 On-Screen Multimedia Manual CD-ROM
- SSS3 Video Materials CD-ROM
- SSS3 Voice-Overs CD-ROM
- NATEF Instructor's Resources CD-ROM
- Health and Safety Sheet

Additional items required:

- Computer
- Access to Printer
- Axle Stands
- Ball Joint Press
- Ball Joint Splitter
- Coil Spring Compressor Tool
- Diagnostic Scan Tool, Adapters and Leads
- Grease Gun
- Hydraulic Press
- Inspection Light
- Jacking Beam
- Personal protective equipment (PPE)
- Pressure Gauge
- Protractor or Set Square
- Pulley Extractor
- Rope and Pry Bar
- Rubber Grease (Consumable Item)
- Splined Adapter for Steering Rack Pinion
- Spring Balance
- Steel Rule
- Steering Wheel Puller Kit
- Technical Information
- Torque Wrench
- Vehicle Hoist - 2 or 4 Post Ramp
- Vehicle Lifting / Jacking Equipment
- Vehicle Service Manual
- Grease (Consumable Item)
- Various Hand Tools

NATEF task list areas addressed:

- IV-A1 P-1
- IV-A2 P-1
- IV-B1 P-1
- IV-B2 P-1
- IV-B3 P-2
- IV-B4 P-3
- IV-B5 P-3
- IV-B7 P-3
- IV-B17 P-2
- IV-B19 P-3
- IV-C1-1 P-1
- IV-C1-2 P-1
- IV-C1-4 P-2
- IV-C1-5 P-2
- IV-C1-7 P-2
- IV-C1-8 P-3
- IV-C1-9 P-2
- IV-C1-10 P-1
- IV-C2-2 P-2
- IV-C2-3 P-3
- IV-C2-4 P-2
- IV-C3-3 P-3
- VI-H6 P-1

Module Facts

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	No.	Average time
Assignments	15	90 minutes
Extension Activities	29	60 minutes
	Total	52 hours

LJ Technical Systems
Web site: www.ljgroup.com

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