



Objectives

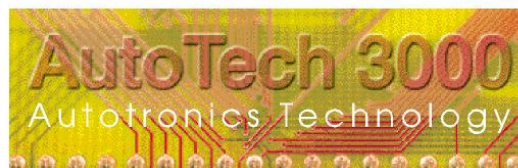
The TPS-3577 Automotive Suspension Simulator is designed to provide students with automotive training program introducing various systems and components in modern cars.

The simulator brings a comprehensive view of the entire system in the car, the system's components and their interconnection, functions, operation, signals, diagnosis and repair methods under hands-on safe activities.

Description

The simulator includes real and simulated components controlled by internal controller that produces the signals for measurement according to its internal simulating program or according to PC simulation programs.

The simulator's panel is with colored graphics clearly presenting the system components, connections and inter-relations with test points for real measurements and LEDs describing the component status.



M O D U L E

TPS-3577

Suspension Simulator

Technical Characteristics

The simulator is in a wide metal case with a colored printed circuit experiment panel (80X60X10 cm) which ensures easy handling and good visibility of the components simulation.

The simulator includes real components and simulation components modules. The experimenting panel includes the system drawings with test points and banana sockets.

The simulator can be operated as a stand alone system without a PC, guided by experimental book using its built in oscilloscope or an external oscilloscope.

The simulator can be connected to a PC in serial communication (RS232 or USB) using SES-CBT courseware and SESCOPE software for signal display

Student PC can be connected to the teacher PC for monitoring, course management and records by SESML software (optional)

The system includes:

- A power switch with indicating light
- SESLAB 2 channel digital oscilloscope
- 7 segment display and control switches, one for fault insertion unit and one for selecting simulation mode
- Eight (8) LEDs to indicate troubleshooting state
- Status mode switches and display
- Warning indicating light
- Graphic and Alphanumeric LCD display 64X240 pixels
- Numeric keyboard
- CAN-BUS interface
- Serial or USB communication interface with the PC
- PC / MANUAL switch
- 12V Power adapter
- Digital multimeter
- Operating and simulation switches
- Simulation potentiometers
- Shock absorber unit Simulation

- Accelerometer simulation
- Braking pressure sensor with simulating unit
- Gear ratio sensor with simulating unit
- Steering angle and speed with simulating driving device
- Simulating modules for engine butterfly valve sensor and its operation, electrical - electronic system shock absorbers controlled by microcontroller, remote control switch for shock absorbers solenoid valves, RPM sensor.

Experiments

This system enables the student to perform experiments and covers the following topics:

- Introduction to modern car suspension system, construction, sensors and operation.
- Accelerometer sensor signal analysis.
- Logic intervention in relation to the vertical acceleration.
- Steering sensor signal analysis.
- Logic intervention in relation to the steering angle and to the car speed.
- Logic the intervention in relation to the gear selected, to the acceleration, and to the car speed.
- Logic intervention in relation to the braking pressure.
- Logic intervention in relation to the steering speed and to the car speed.
- The driving signal of the shock absorbers solenoid valves analysis (waveform and duration).
- Insertion of non-destructive faults and troubleshooting and analysis of irregularities and operational defects, by means of microprocessor fault simulator faultfinding methods with various instruments.

An experiment manual for the student and instructor manual accompany the system.



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