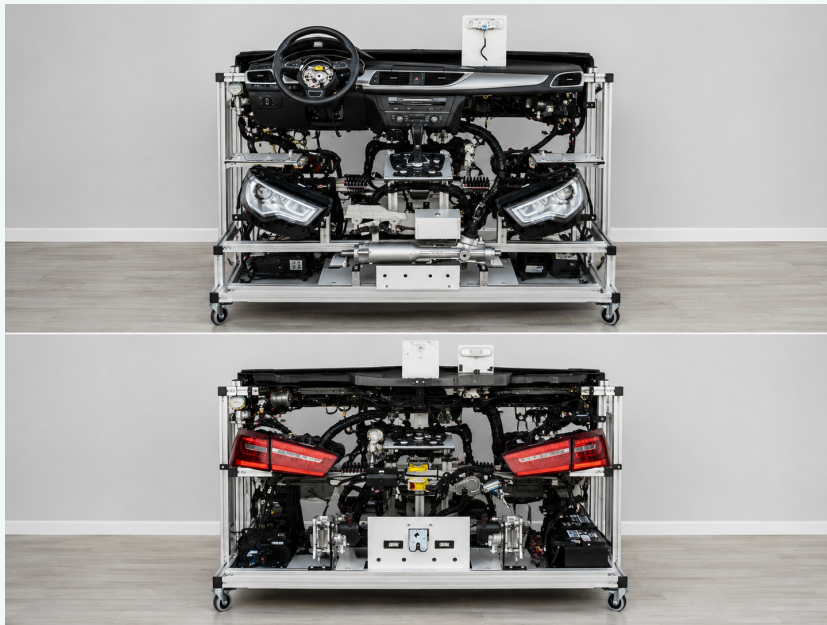


Comfort & Safety Technology

Overview brochure

Practice-oriented training systems for examining modern comfort, communication, control and safety systems in vehicles. From CAN and LIN bus communication and measurement and diagnostic technology to ABS, ASR, ESP and control systems, electrical and electronic relationships can be examined directly on the fully functional system.



CAN & LIN

Networked control units and digital communication

ABS / ASR / ESP

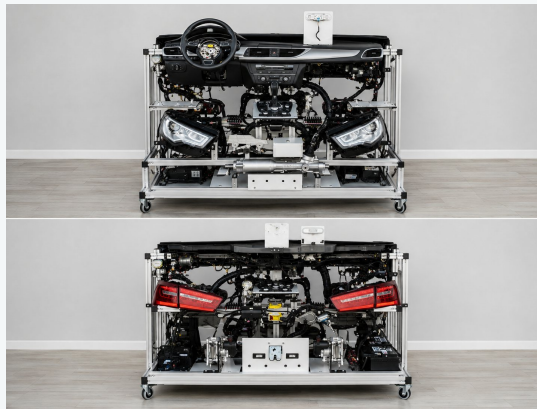
Vehicle dynamics and electronic control systems

Diagnostics

OBD, measured values and systematic troubleshooting

Control & Regulation

Sensors, actuators and closed control loops



ITEM NO. 00S14023

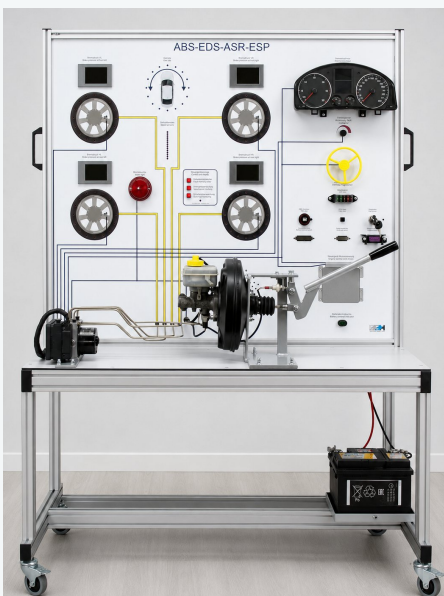
Networked vehicle electronics on the real system

The training model is mounted on a mobile aluminum frame and includes an original dashboard, the complete lighting system and the instrument illumination of an Audi A6.

Various control units and vehicle components are functionally networked, enabling practical examination of CAN and LIN bus systems.

- CAN & LIN Networked vehicle control units
- Measurement access Bridging plugs and measurement sockets
- Original Audi A6 dashboard
- Instrument illumination
- At least 8 faults Predefined faults according to DIN ISO
- OBD Diagnostics with standard commercial test equipment
- Complete lighting system
- Gateway

For fault simulation, at least eight predefined faults according to DIN ISO are integrated via toggle switches. Electrical measurements can be carried out directly in the system using bridging plugs and externally accessible measurement sockets. The OBD diagnostic connector also enables diagnostics using standard commercial testing equipment.



ITEM NO. 00007924

Examine electronic vehicle dynamics realistically

The mobile training rig features a fully functional original ABS-ESP MK60 system.

Special electronics provide a realistic representation of vehicle-dynamics processes during acceleration and braking. This allows ABS, ASR and ESP control processes to be observed and examined directly on the system.

- ABS / ESP MK60 Original vehicle-dynamics system
- ESP Active vehicle-dynamics simulation
- ABS control processes
- ESP interventions
- ASR Controlled engine drive torque
- OBD Diagnostics and actual values
- ASR function
- Steering-angle sensor

Interfaces for computer data acquisition, fault simulation and universal circuit-diagram panels enable comprehensive examination of the system. The supplied VW diagnostic software with OBD interface allows, among other things, reading and clearing the fault memory and recording actual values.



ITEM NO. 00008150

From the sensor to the closed control loop

The functional training rig is used to examine and explain fundamental relationships in control engineering.

Sensors, electronic signal processing and actuators can be viewed in their overall context and used for different technical tasks.

- Open-loop control Fundamentals of open-loop processes
- Closed-loop control Closed control loops
- P / I / D Fundamentals of different controllers
- Sensors & actuators Signal processing in the overall system
- Understanding open-loop and closed-loop control terminology
- P controller
- I controller
- D controller

A computer evaluation unit is required to analyze and demonstrate the various control processes.



ITEM NO. 00002635

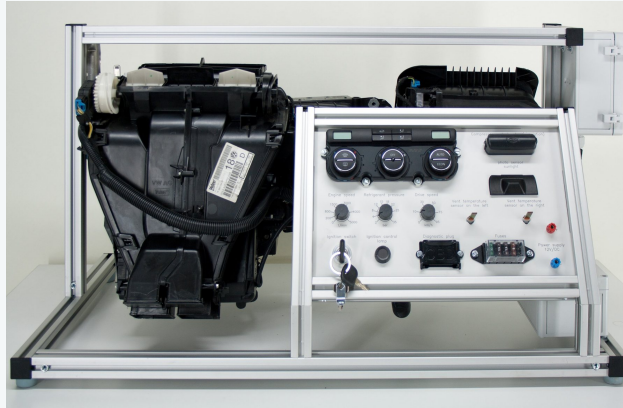
Examine climate-control and heating systems on a real vehicle setup

The training rig is built from original components of a VW Golf dual-zone Climatronic system. Actuator diagnostics can be performed and measured values can be read via the OBD interface using standard workshop diagnostic testers.

Service connections are freely accessible. Condenser and evaporator pressure are displayed directly, while a residual-bus simulator generates missing CAN bus signals such as engine speed and vehicle speed so that the complete climate-control unit can be operated correctly.

- OBD diagnostics Actuator diagnostics and measured values with standard workshop testers
- Pressure measurement Condenser and evaporator pressure are displayed directly
- Residual-bus simulator Simulation of missing CAN bus signals such as engine speed and vehicle speed
- Parking heater Webasto Thermo Top E 12 V, petrol
- Original VW Golf dual-zone Climatronic components
- Original dashboard
- Freely accessible service connections
- Climate pressure gauges for evaporator and condenser

Item no. 00002635 with parking heater. Variant 00002638 without parking heater. A 230 V power supply is available as an optional accessory.



ITEM NO. 00002639

Train control behaviour realistically without a refrigerant circuit

The training model operates without refrigerant and without a driven compressor. The control behaviour of the Climatronic system is simulated electronically.

System diagnostics can be performed via the integrated OBD connector using standard workshop diagnostic testers. Installed residual-bus simulators generate the required signals for compressor control and vehicle speed. This makes it possible, among other things, to demonstrate speed-dependent control of the ram-air flaps.

- Simulation Electronically simulated control behaviour of the 2-zone Climatronic system
- Residual-bus simulators Generate signals for compressor control and vehicle speed
- VW 2-zone Climatronic simulation model
- OBD connector for system diagnostics
- OBD diagnostics System diagnostics using standard workshop diagnostic testers
- No refrigerant Training operation without a driven air-conditioning compressor
- Electronic simulation of control behaviour
- Residual-bus simulation for compressor control